G2 AFV

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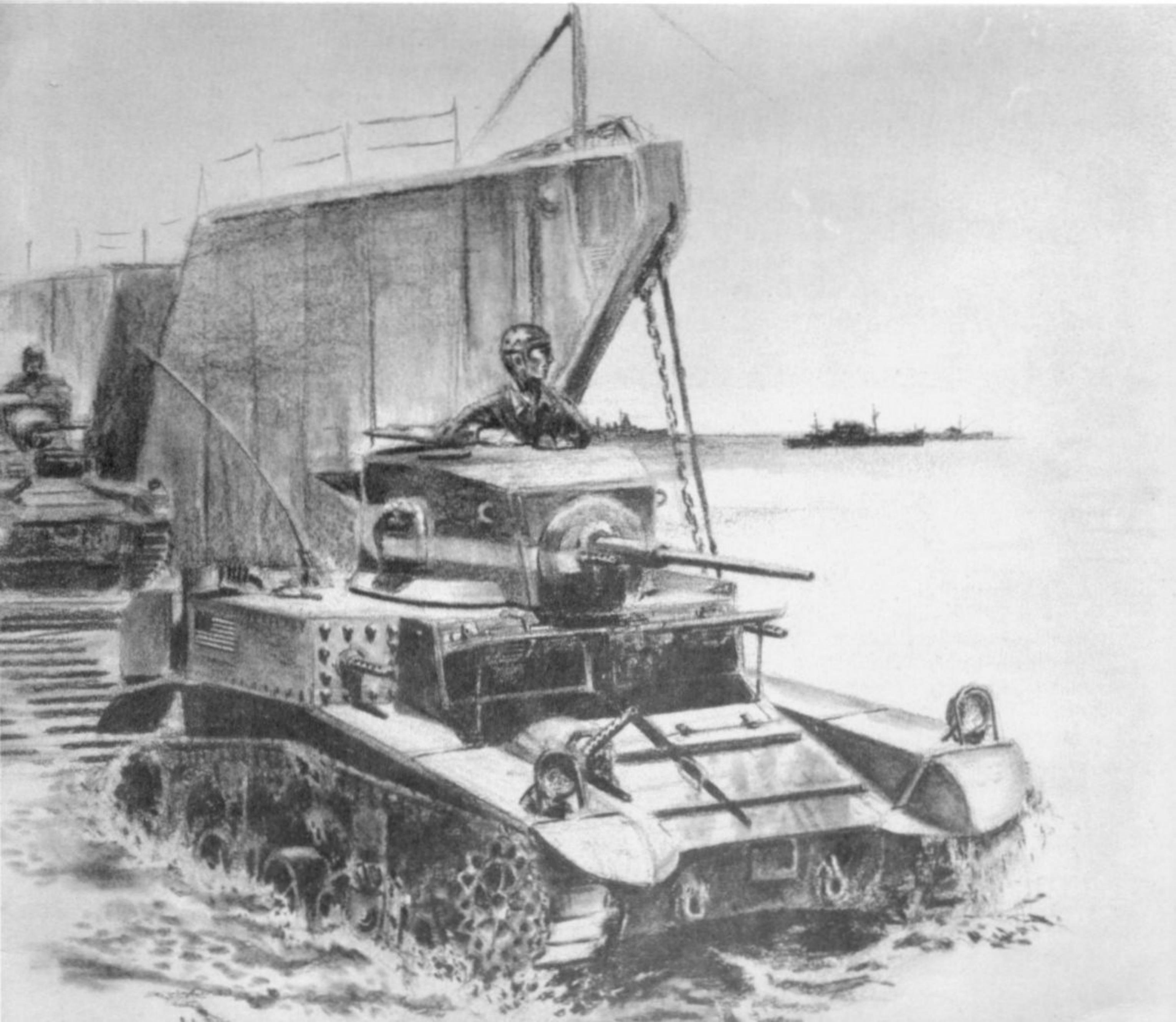

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Vol. 2
No.8

AFV-G2

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COVER: A M3 Stuart Light Tank of the US Army landing from a "Maracaibo" landing craft on November 8th, 1942, when American forces landed at Casablance. With the arrival of US forces in Africa, the occupation by Axis troops was near its end. For more information on the M3 Stuart Light Tank, see page 4. Our cover charcoal drawing is by Brice Weigle of San Diego, Calif.

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The AFV-G2 is a magazine, published monthly, for Armor Enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the History of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest, and to promote an interest and awareness in the subject of AFV's.

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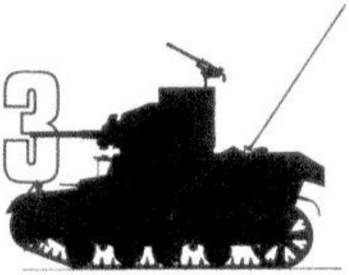
The M-3 Stuart



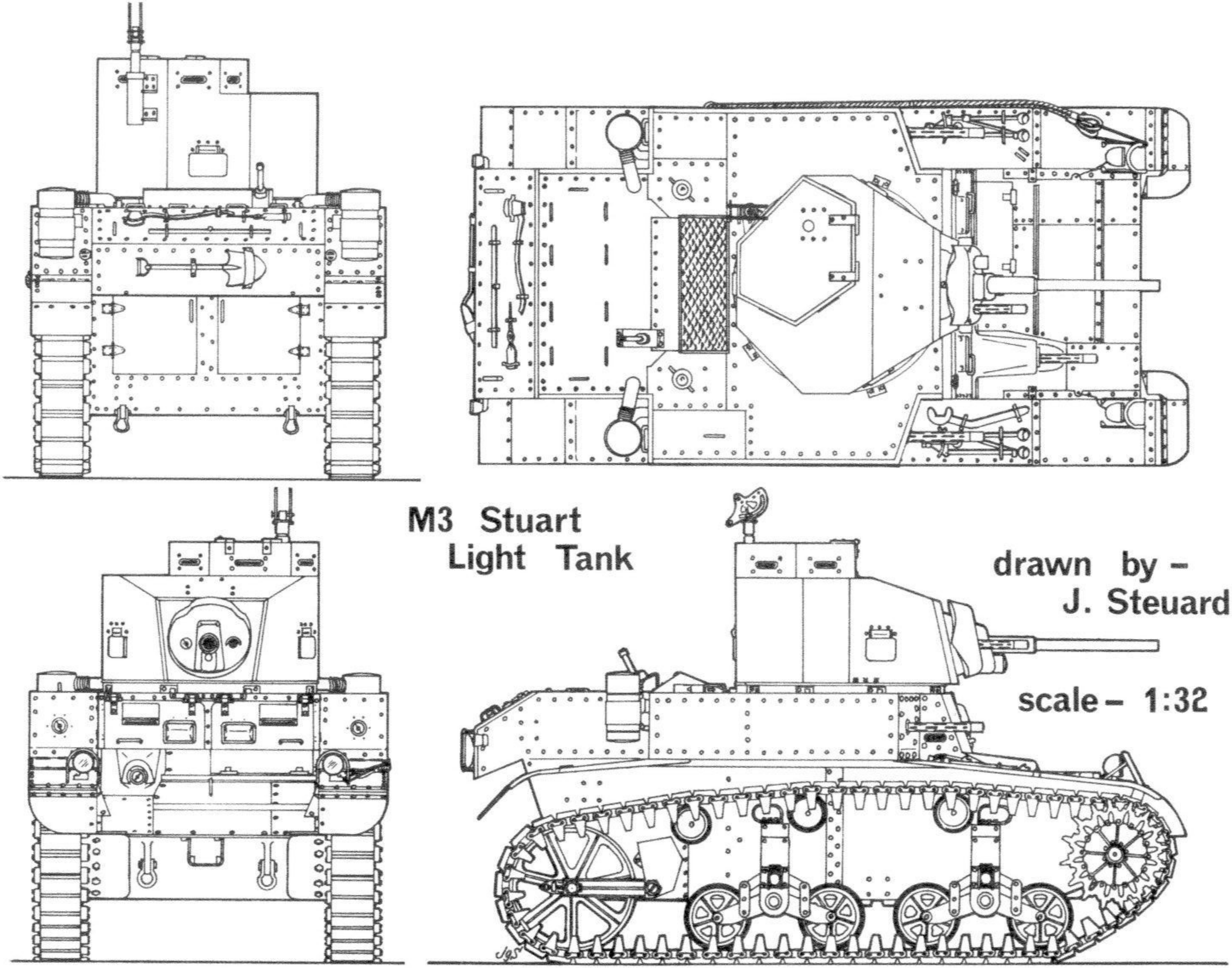
by Jim Steuard

When the United States abruptly entered World War II. on December 7th, 1941, the inventory of armored vehicles in the US Army was badly lacking in both quality and quantity. To blame this shortcoming on any one cause would be impossible, but it was largely due to the conservative attitudes and lack of funds that prevailed during the 1930's when America was pulling itself together after the devasting depression. When the United States entered the war on the Allied side, the only "standard" armored vehicle in production was the M3 Light Tank. This M3, named the "Stuart" after the dashing Confederate cavalry general of the Civil War, was the main tank during the rapid expansion of the US Army during 1941-42. It was the major training tank of the new Armored Divisions while the M3 Grant Medium Tank was being developed and put into production. The M3 Stuart had the honor of being the first American tank to see combat, with the British in North Africa.

In comparison with contemporary tanks of other nations, the M3 Light Tank revealed several outstanding features that were often envied by America's allies. To balance the picture, American tank development had seriously lagged behind other nations in other areas, such as weaponry, and hull construction. The M3 Stuart was a high silhouetted and awkward looking vehicle, with inadequate main armament and an extremely limited range. On the other hand, it was easily the fastest vehicle on either side, until the development of the M18 Tank Destroyer. It featured a reliable engine, an excellent suspension and track system, and it was well liked by its crews. Several revised tanks were developed from the basic pre-war M3, and these later M3A1's, M3A3's, M5's and M5A1's saw service well after the war in various nations that received supplies from the United States via the Marshall Plan.

The hull of the M3 Stuart was constructed from flat sheet armor plates of various thicknesses, joined together by steel angle plates and gussets, and fastened by rivets. For the modeler who is interested in scratch building, the M3 Stuart is an ideal subject for a first project, since it is composed of flat plates. All joints between sheets were sealed with putty, which served as insulation as well as a noise limiting substance. The driver and bow-gunner occupied compartments in the front of the hull. The main fighting compartment was in the approximate center of the hull and the engine compartment was at the tank's rear. These later two compartments were separated by a partition or bulkhead, immediately in front of the engine fan. The fighting compartment was extended on the sides by sponsons, which brought the width of the upper half of the hull nearly even with the outside edges of the tracks. There were numerous doors into the hull, for both entry and for servicing of the power plant. For access to the engine compartment, there were two hinged doors in the rear of the hull. The driver and bow-gunner had two doors for entry, these hinged upward and allowed both entry and vision when not in combat. There were no crew hatches on the hull top. The interior of the hull was lined throughout with a "masonite" type of insulating material that was 1/2-inch thick, and surfaced with 1/32-inch sheet steel. The driver and bow-machine gunner were provided with adjustable bucket seats which were raised above the floor a few inches. Both seats were provided with seat belts, since the crew members could easily slam their heads into the hull top unless fastened to their seats. There were a number of drain valves in the floor of the hull, to allow the crew to drain rain water from the hull.

Early models of the M3 light tank were provided with the turret taken from the M2A4 light tank, as depicted in our 1:32 scale drawings at right. This turret could be found both riveted and welded, and our drawing shows the welded version. The cupola on these early turrets had an irregular shape and a single hinged door in the roof. Later models of the M3 had a homogeneous armor turret of rolled construction; this turret was of roughly circular shape. This later turret was also given a cupola on some models; this cupola was oval shaped with two hinged doors in the roof. The



M3 Stuart Light Tank

drawn by –
J. Steuard

scale – 1:32

GENERAL DATA: M3 'STUART' LIGHT TANK

Crew:	4
Weight (without crew, fuel or accessories)	25,600 lb.
Weight (with crew, fuel and all accessories)	28,000 lb.
Width over-all	88 in.
Length over-all	178 in.
Height over-all	104 in.
Tread (center to center of tracks)	73 in.
Ground Clearance	16.5 in.
Ground Pressure	10.47 lb. psi.

Diameter of turning circle	42 ft.
Maximum grade (with grousers)	45°
Maximum grade (without grousers)	30°
Allowable List	22°
Trench Crossing Ability	6 to 7 ft.
Fording Depth	40 in.
Maximum verticle obstacle	24 in.
Towing ability, drawbar pull	14,800 lb.
Speed, smooth roadway	31 mph.
Speed, cross country	20 mph.
Miles per gallon (gasoline engine)	2
Miles per gallon (diesel engine)	3.5
Cruising Range (gasoline)	75
Cruising Range (diesel)	90

Communications Radio	SCR 245
Range of Radio, Moving	15 mi.
Range of Radio, Stationary	20 mi.

Engine: Make and Type	Continental
Model Number	W 670 Series 9A.
Diameter over-all	42.38 in.
Length over-all	32 in.
Weight, with accessories	1,107 lb.
Horsepower	250 hp. at 2400 rpm.
Number of Cylinders	7
Bore	5.12 in.
Stroke	4.62 in.
Displacement	667.86 cu. in.
Compression Ratio	6.1 to 1

Engine: Make and Type	Guiberson Diesel
Model Number	T-1020 Series 4
Diameter over-all	45.48 in.
Length with starter	36.93 in.
Weight, with accessories	1,107 lb.
Horsepower	250 hp. at 2200 rpm.
Method of Starting	Cartridge
Number of Cylinders	9
Bore	5.12 in.
Stroke	5.50 in.
Displacement	1,021 cu. in.
Compression Ratio	14.5 to 1

Number of Fuel Tanks	2
Capacity (per tank)	28 gal.
Carburetor, Make	Bendix-Stromberg
" " Model	NA-R6B.
Air Cleaner, Type	Oil Bath
Transmission, Type	Syncromesh
Number of Speeds	5F, 1R
Differential Type	Controlled.
Clutch, Number of Plates	5

Tracks: Type	Rubber Shoes
Track Sag	.75 in.
Pitch	5.5 in.
Size of Shoes, Width	7.62 in.
" " Over-all Width	11.62 in.

Electrical System: Type	Battery, Lead-Acid
Voltage	12
Capacity	168 amp-hrs.
Ground	Negative.

Ammunition Stowage:	
37mm Gun	103 rds.
.30 caliber, belted for MG	9,850 rds.
.45 caliber, for Submachine gun	350 rds.
Grenades, Hand	12

Note: On command versions, installation of extra communications equipment limits .30 caliber stowage.

Armament:	1 ea	37mm Gun
	5 ea	.30 caliber LMG
	1 ea	.45 caliber SMG

Armor Thicknesses: Front	.62 and 1.5 in.
Sides	1.0 in.
Top Plate	.5 in.
Rear	1.0 in.
Bottom, at Front	.5 in.
Bottom, at Rear	.5 in.
Bottom, Center	.25 in.
Turret, Front Plate	1.5 in.
Turret, Vertical Sides	1.25 in.
Windshield	1.5 in.

The M3 Stuart Light Tank (Continued from Page 4)

later style of turret offered more protection to the crew, since the interior was lined with sponge rubber. Peepholes in all styles of turrets were protected by bulletproof glass, when in use. Later style turrets of the rolled type had "protectoscopes" installed in the pistol ports, to give protected vision through angled mirrors. Turrets were rotated through 360 degrees by a handwheel-controlled mechanism. The turret rotated on a circular track in the hull; being supported in the track on three support rollers spaced 120 degrees apart. When the handwheel was turned, a pinion of this mechanism, in constant mesh with the gear inside of the circular track, caused the turret to turn.

A total of 4,526 M3 Light Tanks were constructed with gasoline powered Continental W670-9A static radial aircraft engines. These 7-cylinder power plants were mounted in the engine compartment on an engine beam, which was supported by brackets bolted on each side of the compartment. The engine accessories, which included the magnetos, an electric starter, and the oil and fuel pumps were mounted on the rear of the engine, where they could be easily reached through the access doors. The clutch and flywheel were located at the front of the engine, behind the crew compartment bulkhead. There were two fuel tanks, each holding 28 gallons of fuel, located on each side of the engine compartment near the front. The filler caps were situated on the upper hull deck just above the tanks. The gasoline-powered radial engine was a reliable power plant that gave long hours of service with little trouble. It was air-cooled, the air being drawn into the engine compartment by a fan on the engine front. The air entered from the air vent just behind the turret and exited through the exhaust opening behind the engine. Some of the air was force-fed into the crew compartment to assist in blowing shell fumes from the turret while the tank was firing.

1,285 of the M3 tanks were produced with an alternate power plant, since the supplies of the Continental engine were limited. This alternative was a Guiberson 9-cylinder diesel radial engine, which was also air-cooled. Almost all of the M3's which had this power plant were supplied to the Soviet Union, under Lend-Lease. The Guiberson T-1020 Diesel was a robust power plant that produced the same smount of horsepower as the gasoline equivilent. It was started by the use of cartridges; the driver firing a blank shotgun shell, which provided enough gases to turn the engine over and effect ignition. The diesel engine gave better economy than did the gasoline engine, and it had fewer parts to maintain or replace.

The M3 Stuart Light Tank was armed with a 37mm Gun M5, which was mounted in the front of the turret, along with a coaxial machine gun. These weapons were aimed and fired by the gunner assisted by the commander who loaded the gun. The 37mm gun had a maximum elevation of 20 degrees and could be depressed 10 degrees below the horizon. The gun also had 10 degrees of left and right traverse without rotation of the turret. The main gun was fired by depressing the button in

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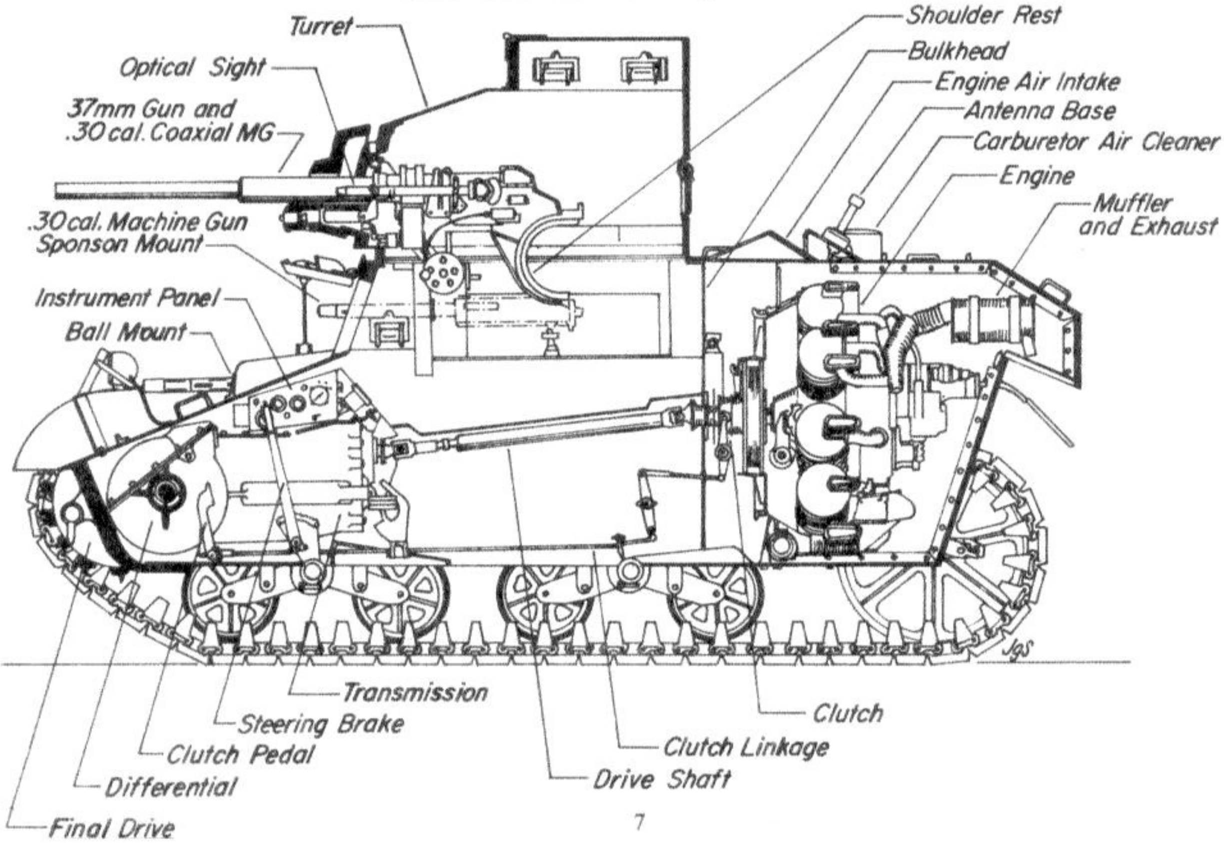


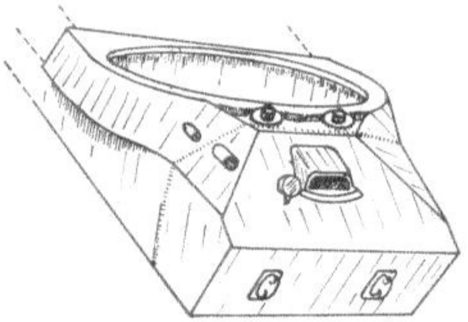
WARGAME CONVERSIONS

Russian JS-II

by Jim Garrison

1943 saw the appearance of the second generation of Russian heavy tanks. The new heavy tank carried the name Joseph Stalin, and it was based on the earlier KV series. There were many similarities between the JS and the KV; but, as far as fighting qualities go, the Stalins were completely new. The second version of the Stalin series of heavy tanks appeared in 1944. Before production of the JS-II ended that year, more than 2,000 had been produced. Both the JS-II and its predecessor, the JS-I, soldiered in the Soviet Army well into the sixties.

Construction of a JS-II. heavy tank in HO scale is not an easy task, but the result is so pleasing as it crosses the wargame board, leaving destroyed Tigers and Panthers in its wake. The following conversion is basically scaled-down from one by C. O. Ellis in Airfix Magazine (January 1967). By substituting the ROCO JS-III. for the Airfix kit, the task is made a bit easier.



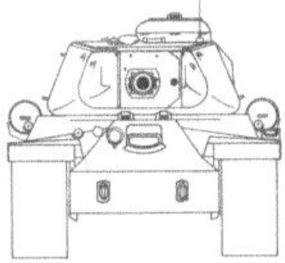
JS II
3/4 Front View
Scale: None

Start by cutting the bow from the JS-III. upper hull. Cut away the area between the front fenders, going back to the hull roof. Also, cut off the point area of the hull bottom. When finished, the front of the tank should be a rectangular hole. Next, cut off the side plates where they join with the hull roof, back of an imaginary line that separates the engine and fighting compartments. Fill the locating holes for the fuel tanks with Green Stuff and then sand flush. Build the new rear hull sides out of sheet plastic, sloping them outward "about 2 degrees off the vertical". New fenders should be made to extend outward, to where the tracks are just barely visible, running the full length of the vehicle. If the auxiliary fuel tanks are remounted, they should go in the cut-out area on the rear sides, not back on the rear hull top.

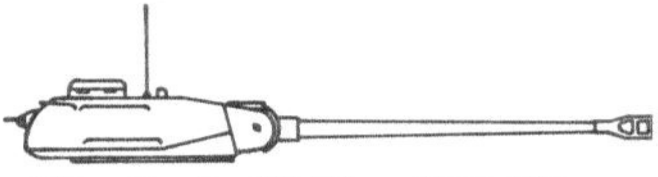
The new glacis plate (or hull front) is a rectangualr piece of sheet plastic, fitted in the hole described above. The driver's vision port is a small piece of sheet plastic, filed to blend with the glacis smoothly. Fill all of the gaps so as to give flat sides to the fighting compartment. Reference to the two hull drawings will show the shape and size for all of the modifications to the hull front. Lastly, cement two 1/4 by 1/8-inch pieces of plastic card to each side of the hull. These are the two stowage box doors.

When building the JS-II. in 1:76 scale, the turret must be carved from balsa wood. For the smaller 1:87th scale, there is a shortcut for all of this work. Airfix's T-34/85 turret is about the correct shape and size needed for a HO scale JS-II. turret. If it appears too large, you can substitute the ROCO T-34/85 turret. Assemble the T-34/85 turret according to the kit directions, but minus the gun barrel. Cut off the rim on the bottom of the turret, so that it sits flush on the hull. Remove the ventilators and the commander's hatch from the turret roof. Now, fill the turret with Green Stuff, or Body Putty, and let it dry completely. After the turret is dried solid, slope the sides and rear by filing and sanding. I used a fine Mill File, and Finger Nail Boards. The rear of the turret should slope more than the sides. The turret should also be given a cast appearance. Mount one of the ventilators that you removed from the turret roof onto the rear of the turret, and you have the commander's ball mounted machine gun.

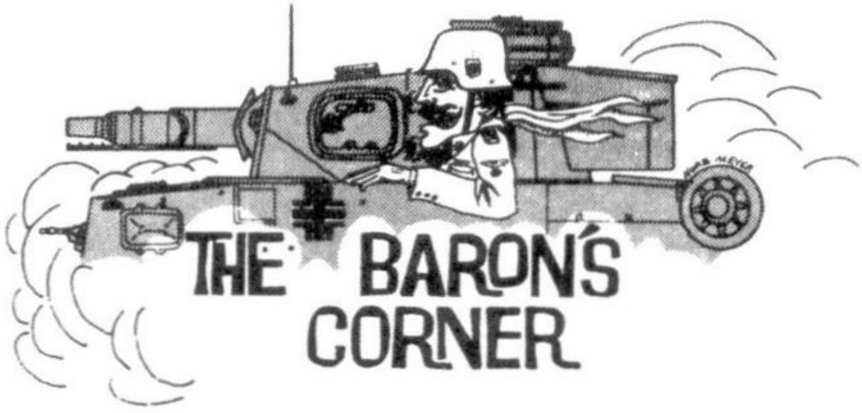
The selection of a barrel for the 122mm gun is not too difficult; it just has to be long, with a double baffle muzzle brake. I have used the barrels from Airfix's Panther and ROCO's Tiger II. Both Micro-Scale and Almarks make fine decal sheets of WWII. Soviet markings. Combine these with a paint job similar to that described in last month's Color 'n Camouflage (Vol. 2, No. 6), and you are ready for the Soviet Spring Offensive on Berlin, in miniature, of course.



JS II Front View
Scale: 1/86



JS II — Turret Side View Scale: 1/86



Modeling Hints by Norb Meyer

The past year has seen more and more items on the commercial market for the benefit of the "scratch-builder". One of these items has been the plan-view template, which gives the actual size of the various pieces which go into the scratch-built model. The use of these templates can be exasperating, if ones does not know the best way to go about using the templates and, at the same time, preserve the magazine or other source from which the plans originally come.

The subject of this month's article is the better way of using these templates-- not necessarily the best or the easiest-- and a brief discussion of other available methods. The easiest method is, of course, to cut the templates out and use them directly; but this gets expensive since you must destroy the plans and everything on the reverse side. You can solve this problem by re-drawing the templates onto another sheet of material; this can be directly onto the sheet plastic or onto another piece of paper. Don't throw up your hands! It is quite simple, although it may be time consuming.

The first method is to re-draw, or should we say re-trace, the templates by anchoring the plastic with tape. The templates are then anchored over the plastic with more tape, and a sheet of carbon paper inserted between the two taped sheets. The template can then be traced with a sharp pencil or smooth scriber. This seems simple enough, but there are two drawbacks. The carbon from the carbon paper does not adhere well to the plastic, and it rubs off easily; additionally, the resulting lines are not accurate enough or thin enough to allow really fine measurements. Therefore, this method should be reserved as a last resort.

The next method is similar to the one just described, with one exception: instead of plastic, a piece of plain paper is substituted. Then the trace is again made over the lines, giving a duplicate impression. While smearing is not as much of a problem on paper as on plastic, the lines are still too thick and distorted. You will probably further discover that you will lose your exact place and probably come up with two lines slightly apart from each other. Now comes the awful dilemma --- which line do you use?

The final method that we will discuss is also the most preferred. First, anchor the page of templates to a solid surface with tape. Then, lay a piece of tracing paper over the templates and tape it down. Next, using a fine pencil point, trace over the templates, using a straight edge or plastic triangle for straightness and making sure that all lines are point-to-point. Once you have completed the retracing of the original, lay the sheet of tracing paper over the sheet plastic that you will use for construction of your model. Using a pin or sharp punch, make small impressions through the paper into the plastic at the ends of the lines. When all of the corners have been done, remove the tracing paper, and connect the pin-pricks in the plastic using a metal straightedge and your scriber. Be careful to scribe point-to-point and inscribe each line (using the tracing for reference). Next, very carefully snap off the excess plastic, and you have the first piece for your model. The use of tracing paper in this process has a two-fold benefit: first of all, it allows you to check each line as it is being drawn for accuracy, and secondly, when the tracing is placed over the plastic, it allows you to position the tracings to get the maximum number of pieces from each sheet of expensive styrene. Also, if you plan carefully, you can use a previously cut edge for the edge of the next part, so that your cutting job is simplier.

By now, you're probably thinking to yourself, "all very good, but there is another way so simple that it has been overlooked---Xerox!" Just photocopy the sheet of templates and cut them out. This does save a lot of time, but you should be very careful, as most photocopy machines distort. While the business world can live with a silly millimeter of distortion, we modeler cannot! In larger scale plans, the amount of distortion may be one inch or so, but in 1:76the scale, a dimension may be off by as much as six scale inches.

Well, there you have it....Pick your method, and enjoy scratch-building that next vehicle.

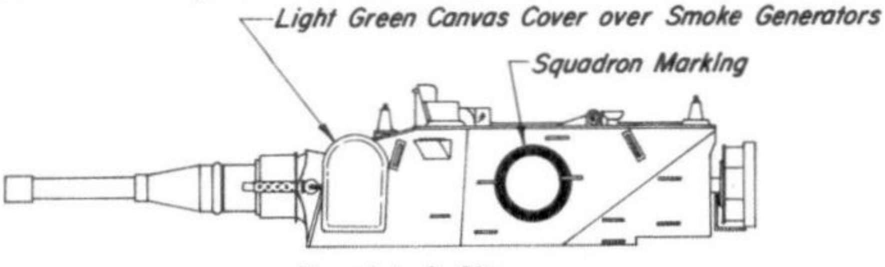
Color 'n Camouflage

The British Saladin Armoured Car Mark I.

by Jim Steuard & Gary Williams, MAFVA

One of the most important British armoured vehicles of recent years is the Alvis 'Saladin', a six-wheeled armoured car which mounts a 75mm main armament, and two light machine guns. This vehicle is currently serving in units of the Royal Armoured Corps, as well as in the armed forces of numerous countries who have purchased this economical vehicle. This vehicle which is the subject for this article was sighted in a convoy in England in 1967, and is typical of armoured vehicles in current service with the British Army. It was assigned to the 3rd Division, a British Army unit with a long and proud record of service.

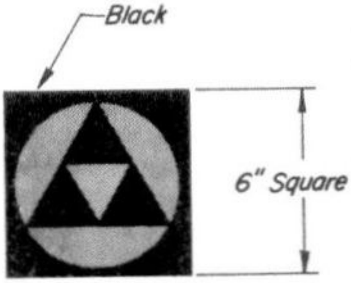
In common with almost all British Army vehicles serving in England or on the continent, our Saladin is painted with the dark green paint officially described as Bronze-Green. This color is represented in our paint chip, appearing on the facing page.



Turret Left Side

Perhaps the easiest method of illustrating all of the complex markings that appear on the Saladin would be to cover each side of the vehicle independently, starting with the turret. The Squadron marking was painted on both sides of the turret; in our case, a 15-inch diameter red ring, with 2-inch wide outsides. This marking identifies "C" Squadron of the parent battalion. Of interest, the smoke dischargers on both turret forward sides were covered with light green canvas covers.

The front of the Saladin carried numerous markings, which were generally also carried on the vehicle rear. The vehicle refistration number (similar to a license plate) was painted on a black metal plate, which was fastened to the left front fender of the vehicle (viewed from the front). This metal plate was 4-inches high and 18-inches long, with 2-inch high painted numbers and letters. All current military registration numbers consist of two numbers, then two letters, and finally two numbers. Our particular vehicle carried the registration: 01CC60.



Shaded area = Red

Formation Insignia - British 3rd Division

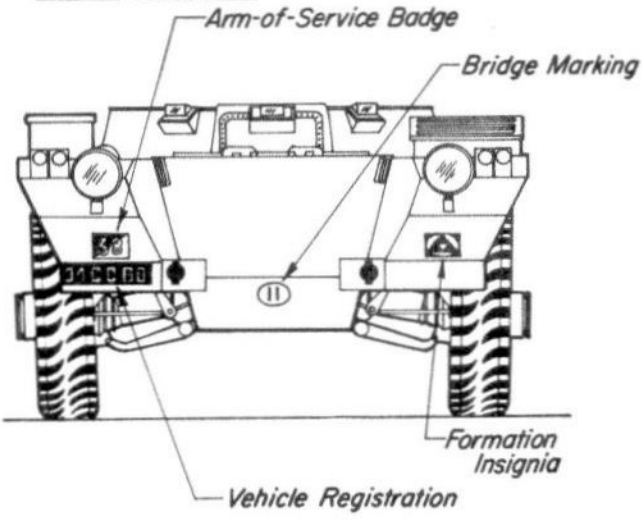
The formation insignia of the 3rd Division was carried on the right front fender. This marking consisted of a 6-inch side black square, with a red inside circle. Inside of the circle was a black triangle, with an inverted red triangle inside of this, as illustrated at left.

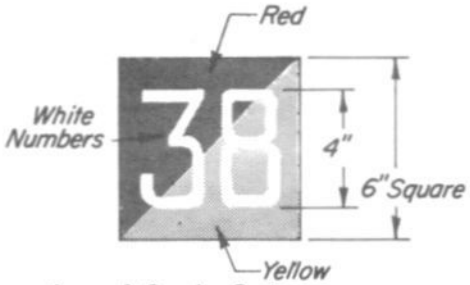
On the opposite fender, immediately above the registration number, appeared the Arm-of-Service Badge; this was also a 6-inch sided square divided diagonally. The upper triangle was painted red, while the lower triangle was yellow. The white numbers "38" appeared in the center of the square to indicate the unit. These numbers were 4-inches high.

The Bridge Classification Marking, a 6-inch chrome yellow circle with 3-inch high black numbers to identify the weight of the vehicle in tons, was applied to the lower hull, on the centerline of the vehicle.

On the sides of the vehicle, immediately above the tires, appear 1-inch white high numbers to indicate the tire pressure; in the case of the Saladin, the symbols are: TP-44. This symbol is the sole markings on the vehicle's side.

Partial Front View





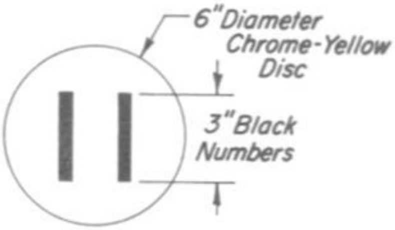
Arm-of-Service Badge and Unit Serial Number

BRITISH BRONZE-GREEN			
5 pts	Floquil	M46	Dark Green
3 pts	Floquil	M50	Dark Blue
1 pt	Floquil	M31	Yellow

🟩

The rear of the Saladin armoured car hull carries almost the same information as the front, with two exceptions. First of all, the vehicle registration plate was fastened to the upper part of the right rear fender (viewed from the rear), above the muffler. The rear registration plate takes a different format on the vehicle; the letters and numbers are in three rows of two characters each. There is a small light just above the registration plate, for night illumination from the rear.

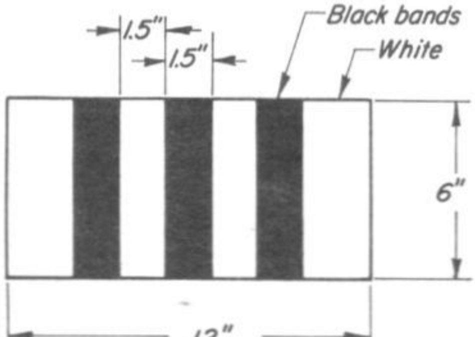
The Arm-of-Service Badge also appears on the rear of our Saladin, in identical format to the front. It is painted on the right side of the hull rear (viewed from the rear). On the left side of the hull rear appears the Formation Insignia, again in an identical format to the front marking. These markings are clearly shown in the partial rear view below.



Bridge Classification Marking

All armoured vehicles of the British Army are provided with a Convoy Sign, which is painted in the center of the hull rear plates. This sign consists of a 6-inch by 12-inch white rectangle, with three vertical black stripes dividing the rectangle. The black and white vertical stripes are 1-1/2 inches in width. This sign is used as a visual reference sign, to maintain distance when the vehicles are operating in a convoy. The sign is lit by a small light just above the sign, for night useage; this light is shaded so that no light shows above.

Convoy Sign

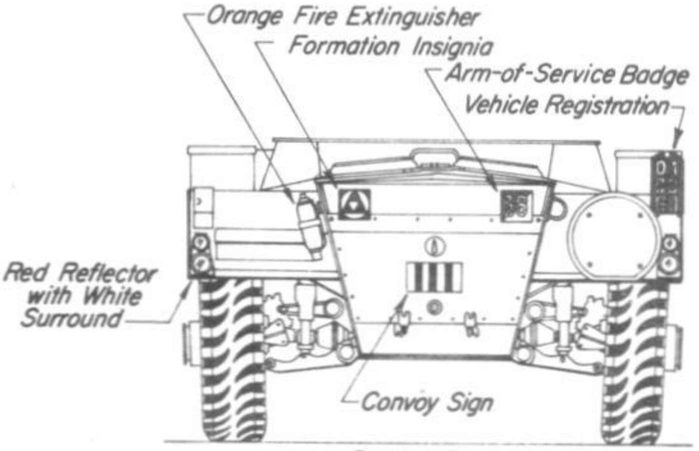


On almost all versions of the Saladin, a small portable fire extinguisher is fastened to the side of the hull rear, on the left. This fire extinguisher is painted brilliant orange, evidently as a recognition color, to assist in finding it when needed.

In addition to the above markings, all Saladins are given red reflectors, which are fastened to both rear fenders on the outside corners below the rear lights. These red reflectors were surrounded by a white background to assist in visibility on convoys. These rear reflectors are a standard fitting on British military wheeled vehicles.

As mentioned above, Saladins have been widely used in over twenty countries, who have been supplied with arms by the British arms makers. Saladins were active in the Biafran Civil War, fighting with the Nigerian forces; these vehicles appear in photos in similar markings to British vehicles. During the recent Jordanian Civil War, Saladins were active in street patrols in Amman; many of these were shown on television, in banded sand and green paint finish. Saladins are effective substitutes for tanks, offering far cheaper mobility for emerging nations that require armored equipment, but who do not have a large budget to acquire these vehicles. In most cases, the Saladin offers good cross-country mobility and far better economy than equivalent tracked vehicles.

For the modeler, an excellent model of the Saladin is offered by the Tamiya Company in 1:35 scale, while a 1:32 version is offered by Airfix, in their toy line.



Partial Rear View

ARMOURED FORMATIONS OF THE BRITISH ARMY

1st Armoured Division - 1943-44

by Bill Platz

1st Armoured Division

1943-44

WHITE CHARGING RHINO
ON BLACK BACKGROUND

For 1st Armoured Division, the pursuit of the defeated axis forces after the Battle of El Alamein started slowly. On November 4th, a patrol from 10th Hussars captured General von Thoma, the commander of the Afrikakorps; and, for a while, all went well as the tanks rolled forward. But then the fuel ran out, and the "B" echelon vehicles bringing up supplies were caught in a quagmire of mud after torrential rainstorms. Through the muck and mire, the division lumbered onwards in a series of flanking moves designed to cut off the Axis retreat. But each time, the German rear guards managed to escape encirclement, leaving a trail of mines and booby traps in their wake. On the 15th of November, the division was relieved, turned over its tanks to 7th Armoured, and went into reserve.

Between November 1942 and March 1943, 1st Armoured Division did not see combat. Slowly, more slowly even than Montgomery's advance, the division followed the leading elements of 8th Army across North Africa. Then, as they waited at Timini, a small town between Tobruk and Bengazi, the troops received orders to move up to the front. The Axis were making a stand at the Mareth Line on the border of Libya and Tunisia; and, on March 2nd, the long lines of the division's transport started out along the coast road. Through Derna, Bengazi, and Mersa Brega and on to Tripoli, tanks, guns and trucks plodded along at 15 mph until the division reached Medenine. It was here that Montgomery was assembling the forces for another carefully planned battle. By March 14th, the Germans had failed in their attempt to smash the Americans at Kasserine Pass and their assault on the 8th Army's position before the Mareth Line. Now they waited for the British attack.

March 19, 1943; General Freyberg's New Zealand Corps (with 8th Armoured Brigade attached) assembled near Wilder's Gap (see map) and began a wide flanking move to capture the town of Gabes. The next day, the rest of the British infantry launched a frontal attack on the main defenses of the Mareth position, while 1st Armoured Division waited to exploit the breakthrough. The infantry attack failed; and, when the 15. Panzer-Division counterattacked, the British armour was unable to cross the Wadi Zigzaou in sufficient numbers to intervene. 1st Armoured Division was never called forward.

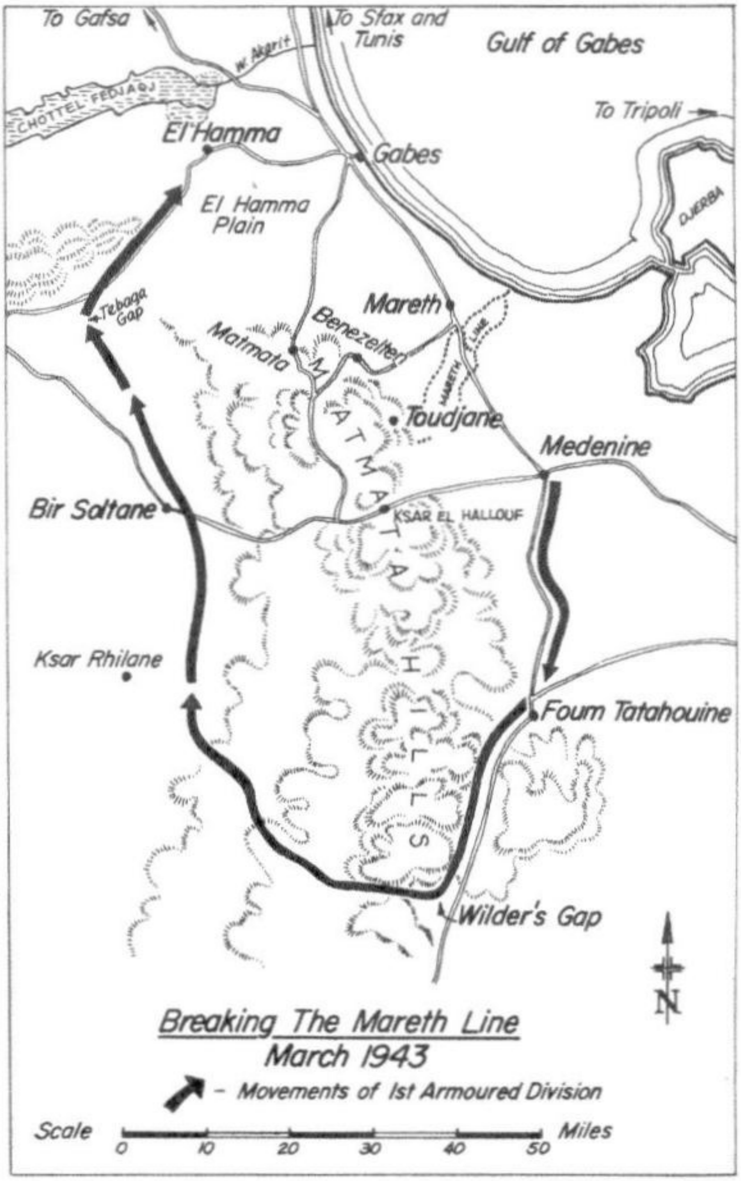
While the infantry of 30th Corps battered themselves against the front of the Axis position, the New Zealanders drove in the Italian Saharan Group and pushed forward to the approaches to the Tebaga Gap. Here they were halted by the appearance of 21. Panzer-Division and 164. Leichte-Division which had been hurriedly shifted to cover the threatened flank. The result was a stalemate along the whole front.

Montgomery then shifted his plans. With the Axis reserves committed, he now changed the point of his attack - sending 10th Corps around the flank to support the New Zealanders and 4th Indian Division through the Matmata Hills. 1st Armoured Division turned over their positions on the plains west of Medenine on the afternoon of March 23rd and moved back through the town, and down the road to Wilder's Gap. The tanks were carried on Scrammel transporters. To the troops, the move was chaos. Major John Hogg of the 1st Bn. Kings Royal Rifle Corps (KRRC) had turned over his positions to a battalion of Gurka Rifles from the 4th Indian Division, when he learned that they also were to move out, and along the same route as his unit. After a brief conference, things were sorted out, and the KRRC, part of 7th Motor Brigade, rolled down the highway towards Medenine. Just outside the town, however, the column came to a screeching halt. Medenine was a solid mass of vehicles, as the transport of two corps tried to pass through at the same time. By dawn, Hogg's unit had covered only 16 miles and was 12 hours behind schedule; however, by driving all day, through the night, and all the next day, the Riflemen were able to arrive at the Gap half an hour before the attack. 2nd Armoured Brigade had reached the New Zealand positions on the 25th of March, as had the headquarters of Lt. Gen. Brian Horrocks' 10th Corps. Horrocks now planned his attack for the next day.

All day on the 26th, the "Khamseen" blew through the pass between Djebel Tebaga and the Matmata Hills masking the movement of the last elements of 1st Armoured Division into their assembly area. Then, it was 1600 hours; and the New Zealanders, with the Shermans of 8th Armoured Brigade leading, moved forward against the Axis outposts in the Gap. Behind them, the 10th Corp Artillery fired as fast as the gunners could reload. 1730 hours. Aircraft engines echoed through the valley. Out of the setting sun came squadron after squadron of British aircraft, skimming over the heads of the advancing "Kiwis". For the first time, RAF fighter-bombers, "Jabos", gave close tactical support to an armoured attack; 21. Panzer-Division was caught by surprise by a squadron of Hurricane "Tank-Busters"; fighters with 40mm cannon fitted under the wings. Under the combined air and ground assault, the Axis defenses crumbled. 1800 hours; twilight. The New Zealanders halted, after capturing their objectives and penetrating 2-1/2 miles into the German lines. Then, out of the gathering darkness, rumbled the tanks of 1st Armoured Division. On the left, the 9th Lancers; on the right, the Bays - each regiment accompanied by a company of Motor Infantry - advanced in open order, followed by 2nd Armoured Brigade H.Q. with the Shermans and Crusaders of the 10th Hussars in support. Behind the tanks came the infantry battalions of 7th Motor Brigade, and, bringing up the rear, the 17-pounder anti-tank guns of 76th Anti-Tank Regiment. These guns had just arrived and were going into action for the first time. They were to make quite an impression on all who saw them, particularly on a Pzkw. IV, whose turret was last seen disappearing over the horizon. In the midst of this moving mass of transport loomed the high silhouettes of the three Grant command tanks - 10th Corps Tactical H.Q. 2000 hours. Darkness halted the advance. Tracers arced across the stars, marking the last scattered engagements. For 3 hours, the British waited, unable to see and thus unable to move. Back with the trucks of 7th Motor Brigade, Major Hogg wondered about the possibility of a sudden artillery barrage or Stuka attack on the mass of vehicles choking the Gap. 2315 hours. A pale moon rose over the hills and the tanks rolled forward again. Scattered fighting broke out as tanks and guns of 21. Panzer-Division were overrun. Units lost their way in the mad, helter-skelter advance. The Chaplain from the 9th Lancers, searching for the regimental "B" echelon, captured a battery of 88mm guns - quite unintentionally.

And so it went. By dawn on the 27th, the division had covered another 10 miles across broken ground and had passed completely through 21. Panzer-Division. But, the prize of victory was lost. Gathering together a scratch force of anti-tank guns, the Germans were able to establish themselves in the village of El Hamma. The Mareth Line was doomed, but the bulk of Meese's Italian Army (including the DAK) was able to escape while El Hamma was held. The Axis forces fell back to the Wadi Araket position on the night of the 28th, while the El Hamma garrison held out until the morning of the following day.

Between the end of March and the 9th of April, 1st Armoured was placed in reserve while the Arakit battle was being planned. By then, the Axis withdrew again, and the tankers were launched northwards to locate and destroy the 10. Panzer-Division. Instead a patrol from 12th Lancers made contact with troops from the United States II. Corps moving East - a merging which signalled the end of the Axis hopes in Africa.



Breaking The Mareth Line
March 1943

- Movements of 1st Armoured Division

Scale 0 10 20 30 40 50 Miles

1944

On May 27th, Division Headquarters flew across the Mediterranean and established itself on the Eastern coast of the Italian Peninsula. Here, under its commander, Major General A. Galloway, the division assembled its troops and conducted much needed training in the new Italian environment. Old hands from the desert would hardly have recognized the formation. The 2nd Armoured Brigade remained, with the 1st Bn. KRRC as its Motor Battalion; however, the 7th Motor Brigade had its name changed to 18th Infantry Brigade and three new battalions had replaced the veterans of Alamein (9th Bn, Kings Own Yorkshire Light Infantry, 1st Bn, Buffs, and 14th Bn., Foresters). A second infantry brigade, the 43rd Gurka Lorried Infantry Brigade was also attached and the armoured car regiment was replaced by an Armoured Reconnaissance Regiment, the 4th Hussars, equipped with Shermans and Stuart Recce Vehicles (M5's with their turrets replaced by a ring mount .50 caliber machine gun).

On August 25th, the division moved out for the attack on the German "Gothic Line" position. The tanks drove north through choking dust, twisting and turning along the winding mountain tracks, where some of the vehicles swerved off the narrow roads and rolled down the steep slopes into the canyons below. Worn tracks broke and had to be replaced. Between August 31st and September 3rd, 2nd Armoured Brigade lost 20 tanks to the rough roadway, but the units arrived on time at the River Foglia, and joined 5th Corps.

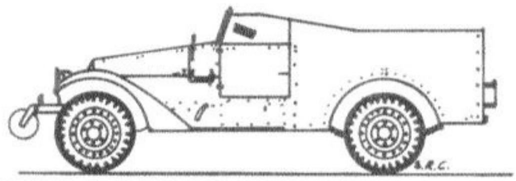
Between the Foglia and the Marano Rivers, the Italian countryside is a tanker's nightmare. Here, the Appennine Mountains extend down to the Adriatic coast in a series of ridges, separated by valleys with gravel-bedded rivers. The high ground is covered with olive groves and vineyards, and the level areas are marshy, with farm buildings scattered through the fields. Halfway between the two rivers is a third stream, the Conca, and north of this, the village of San Savino perches on the southern end of a ridge which runs northward for about two miles.

5th Corps infantry was in position on the north bank of the Conca by the morning of September 4, 1944, when the tanks of the 4th Hussars (1st Armoured's Recce Regiment) arrived. The 4th took up positions and began to support the footsloggers with indirect fire from their Shermans. The plan called for the 46th Infantry Division to break through the German positions and force a crossing of the Marano River, and the let 1st Armoured Division pass through and exploit northwards. However, when the armour arrived on the scene, they found the infantry held up by strong German positions on the high ground between the rivers. The tanks would have to make their own breakthrough.

STUART "Recce" Tank
4th Hussars, ITALY — 1944

Brigadier Goodbody gathered his 2nd Armoured Brigade together and hurriedly planned his attack. His intelligence indicated that the Germans were pulling out. In actual fact, however, elements of the 29. Panzer-Grenadier-Division had just arrived to reinforce the garrison of San Savino and they had no intention of leaving voluntarily. Misinformed, 2nd Armoured Brigade launched its assault, while the division's two infantry brigades struggled to close up to the tanks. Across the river, Goodbody wheeled his brigade to the west and moved against the San Savino ridge. On the left flank, 10th Hussars, accompanied by "B" Company, 1st KRRC, advanced between the river and the town; while on the right, the Bays, with "A" Company of the Riflemen, moved against the ridge. The 9th Lancers were kept in reserve behind the leading regiments. The attack was stopped cold by accurate artillery and anti-tank gun fire; however, the Squadron H.Q. vehicles from the Bay's "C" Squadron actually reached San Savino as a result of a wrong turn. After destroying a Pzkw. IV. and causing some consternation among the Germans, the two tanks were destroyed, and the crews returned to their own lines on foot.

During the evening of the 4th, the first units of the 18th Infantry Brigade arrived north of the Conca, and plans were made to continue the attack the next day. The 9th Lancers with "C" Company, 1st KRRC, would capture the village and thus clear the way for the division's advance to the Marano. At 0900 hours, "B" Squadron of the 9th moved forward. Almost immediately, two tanks were bogged down between the start line and the German-held ridge, where the Panzerfausten of Panzer-Grenadier-Regiment 71. waited. The Shermans closed in, machine gunning every bush and haystack, firing HE at the buildings, each troop covering the advance of the others. South of the town was a cemetary, and along one side of this, a sunken road. Here, a number of snipers and Panzerfausten held up the advance. Corporal Moffatt, of the Regimental Recce Troop, saw the problem, and drove his turretless Stuart onto the road, its twin .50 caliber machine guns blazing. Moffatt's tank swept the road clear, but after a few moments in this exposed position, the Stuart was hit and Corporal Moffatt was killed. The 9th Lancers had reached their limit, and now they held their positions, supported only by a platoon of Riflemen under Lt. David House of the KRRC. They held until dark, supported by massed artillery fire from the 11th Rgt., Royal Horse Artillery, and every other gun that could be brought to bear. Then, the remaining tanks were relieved by the 18th Infantry Brigade. For three days, the Germans counterattacked the British position in the San Savino graveyard; and, for three days, 1st Armoured's footsloggers held on. The Shermans were used as artillery, firing hundreds of 75mm rounds into the town. Each of the German attacks was broken.



WHITE ARMOURED TRUCK (White Scout Car)
1st BN. Kings Royal Rifle Corps ITALY — Sept. 1944

On September 12th, 1st Armoured Division began the final assault on the San Savino ridgeline. Both infantry brigades were to attack, each supported by one of the tank regiments, while the 10th Hussars provided covering fire. The German lines broke, and 1st Armoured pushed on to the Marano River at last. On the 15th, the 43rd Gurka Infantry Brigade crossed the river and pushed on to the north. By September 20th, the Germans had withdrawn behind the River Marecchio. Here, on September 25th, 2nd Armoured Brigade was detached to become an independent armoured brigade.

There was no longer a need for an armoured division with 8th Army; and, by October, 1st Armoured Division had ceased to be operational. The division was officially disbanded on January 11th, 1945, after several months as an administrative and cadre command. The White Rhino had come a long way, from France in 1940 to Egypt, to Tunisia, to Italy in 1945 and now the journey had ended.

PRODUCT REVIEW: Tamiya Six-Pounder

by Don Golde

It's great to see Tamiya come out with the six-pounder since it's tiring to build German armour all the time. The model is of the later version British six-pounder with a muzzle brake on the barrel.

Overall, the model has excellent detail with only two major faults. First, the trend pattern on the tires is wrong. The pattern is more like the one found on the American version of the gun. The second fault is a box on the gun shield which is much too large; the upper end sticks up over the shield.

The kit itself goes together easily. The only trouble is making sure the gun trails, gun shield and axle fit together correctly. Also, the barrel comes in two pieces, and it doesn't quite line up correctly. There is only one other minor detail problem - the sighting device is a bit crude.

This kit includes three crewmen: one loader, one sighting the gun, and the gun commander. These figures are nicely done and can easily be converted to other uses. The men come in three to five pieces, but the fit between the upper and lower parts of the bodies is rather poor. I wish that Tamiya had found another way of attaching the helmets to the "trees" because this causes a small detail problem, as there is a large piece of plastic on the back of each helmet.

There are a few nice details included in the model. Tamiya has allowed the modeller to choose whether he wants the block open or closed. Also, there is choice concerning trails; whether you want them open if the gun is in firing position, or closed if it is in the traveling position. These positions need not be permanently fixed. Tamiya has also included small details like shells, shell cases and shell boxes, which are very useful in making a diorama. The only fault here is that the shells are too long to fit in the shell boxes, but you can't have everything.

This is an excellent kit; with a little work, it can be made even better, or possibly converted to the American 57mm AT gun. Hopefully, Tamiya will see fit to bring out a Bren gun carrier to tow the six-pounder. I hope Tamiya will follow other Allied types, because the best way to develop the modeller's interest in Allied armour is to bring out more models in the same class as the six-pounder.

Scratch-Building a 1:32 scale Jagdpanzer Elefant

By F. J. "Rick" Tyson

The Elefant was a strongly armoured vehicle of limited mobility, armed with an '88' similar to that in the Jagdpanther and Tiger II. It originated from the VK 4501 (P) (Porshe 101) Tiger Chassis, but both the sprockets and idlers were cogged. It was powered by two Maybach H. L. 120 engines with electric drive. The '88' was mounted in a high box-like structure in the rear of the vehicle. Later versions had bowmachine guns added; some were also field-modified for an AA machine gun by the commander's hatch.

The Elefant was in service from 1943 with two heavy AT battalions on the Eastern front. The survivors were used in Italy in 1944. A small number of recovery versions were also built. The approximate production was:

1. Original Tiger (P) Ferdinand	90
2. Late production versions and rebuilts	30
3. Recovery units	20

Originally, Elefants came without zimmeritt, but in the field many were later at least partially covered. The last production models and those returning from repair shops were fully covered with zimmeritt. Later Elefants also had a large storage box mounted on the left side.

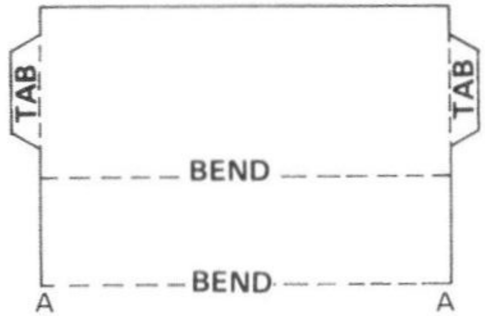
The succeeding pages of templates come from the Scale AFV Series Sept. 1/A (reviewed in Vol. II, No. 5); using the templates, you can easily scratch-build your own Elefant with sheet styrene. Be sure to cut right on top of the cut lines and score all bends. Also, bevel all edges to get an exact fit. In addition to sheet styrene, the following parts from Tamiya 1/35 scale AFV kits are needed: Panther track, Tiger II gun barrel, and assorted tools, tow cables, spare track, fuel cans, hooks, hatches, etc. There are several options for the suspension:

1. Tamiya #15 AMXDCA or #14 AMX 105 1/35 Bogies with slight modification to hubs. These are perfect for 1/32 scale.
2. Tamiya King Tiger II Bogies (12 pair). Change the face of every other one by adding a protrusion. These are slightly over-scale.
3. Aurora 1/48 King Tiger II road wheels with additional detail. These are slightly under-scale.

Use Tamiya 1/35 Panther sprockets (4) as these are closer to scale and more realistic than those in the Tiger kits. The commander's hatch from a Monogram Sturm IV is also needed.

The Scale AFV Series, along with the sheet styrene and Tamiya kits, is available from the Squadron Shop, Inc., 23500 John R., Hazel Park, Michigan 48030. An Elefant modeled from these plans is on display at the Squadron Shop AFV Museum; thanks go to the Squadron Shop for materials and J. W. Caler Aeronautica for reference material.

Follow the steps as shown and attach parts as listed. You will find scratch-building exciting and easy! Good luck.

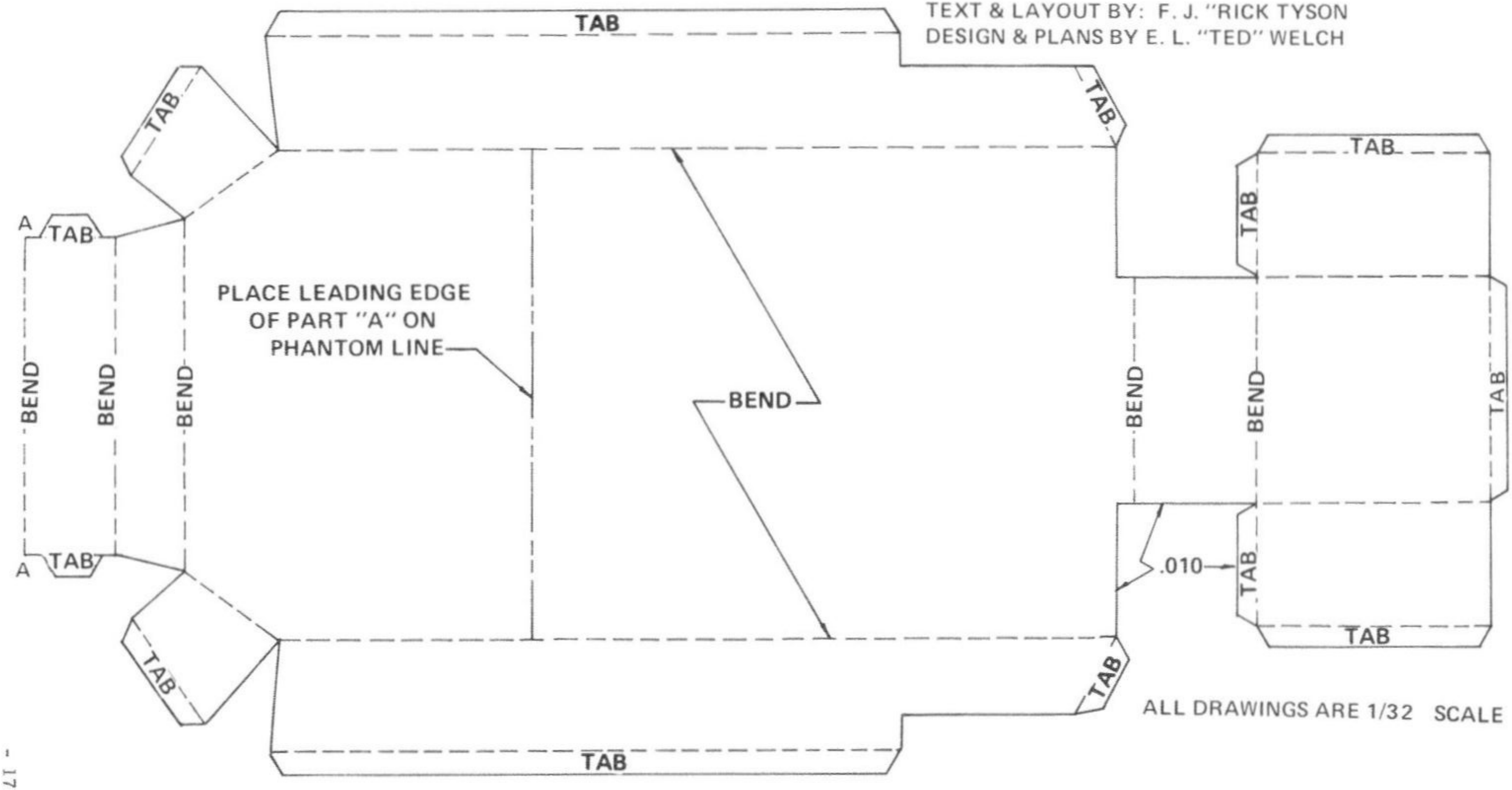


PART "B"

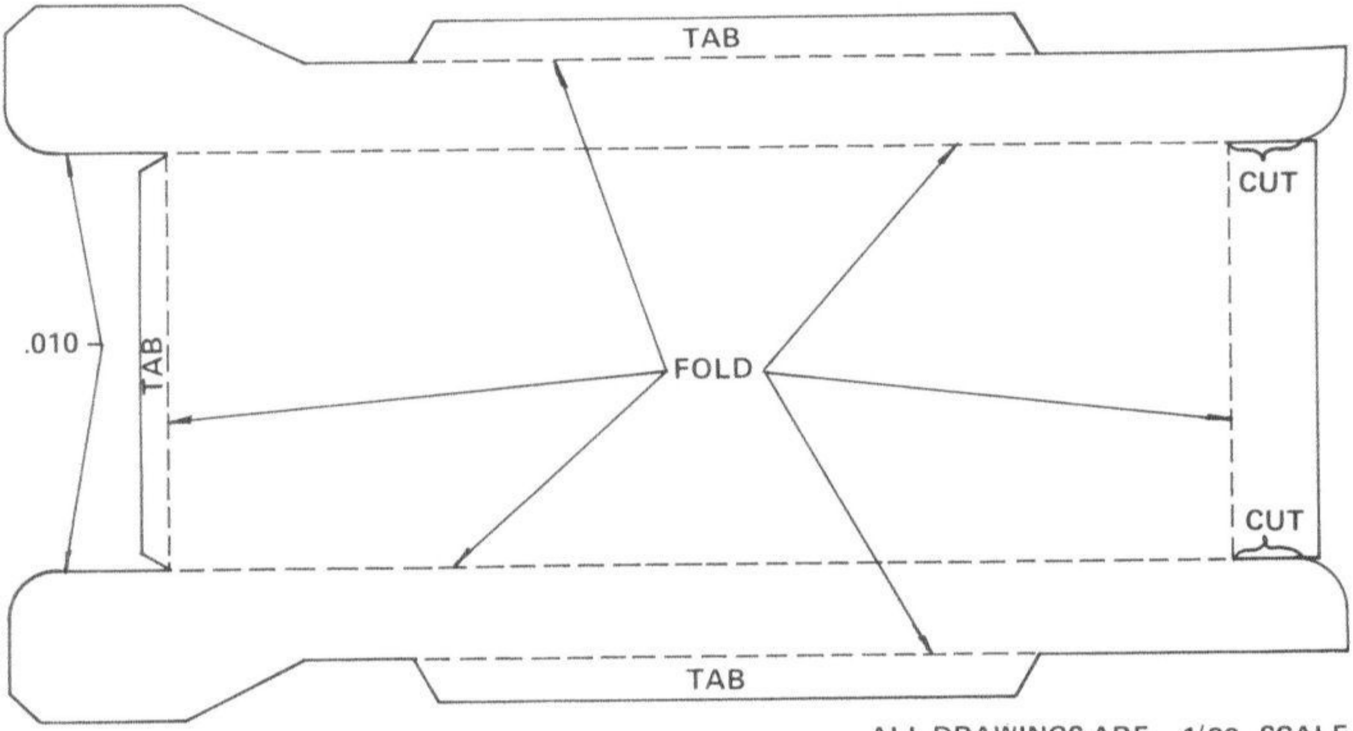
REFERENCE:

1. PANZERKAMPFWAGEN VI
   W. J. SPIELBERGER/UWE FEIST
2. THE TIGER TANKS – ARMOR SERIES NO. 1
   H. J. NOWARRA/E. T. MALONEY/UWE FEIST
3. GERMAN TANKS OF WORLD WAR II
   F. M. von SENGER UND ETTERLIN
4. BELLONA HANDBOOK NO. 1
   P. CHAMBERLAIN/H. L. DOYLE
5. No. 20 ARMOR PROFILE
   PANZERJAGER TIGER (P) ELEFANT
   BY W. J. SPIELBERGER.
6. GERMAN TANKS 1914-1968
   H. J. NOWARRA
7. 50 FAMOUS TANKS
   GEORGE BRADFORD/LEN MORGAN
8. GERMAN TANK & ANTI-TANK
   E. J. HOFFSCHMIDT/W. H. TANTUM IV

TEXT & LAYOUT BY: F. J. "RICK TYSON
DESIGN & PLANS BY E. L. "TED" WELCH



ALL DRAWINGS ARE 1/32 SCALE



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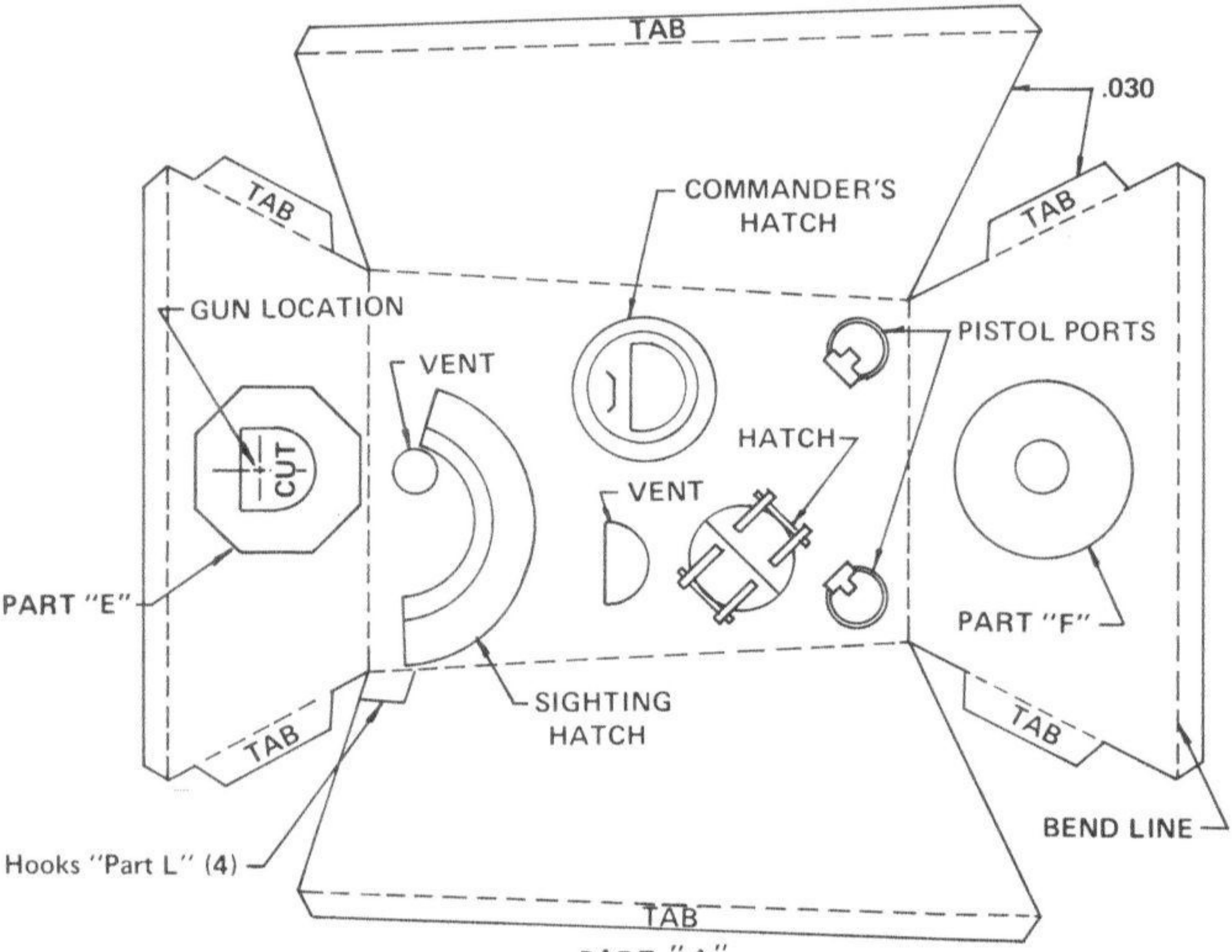

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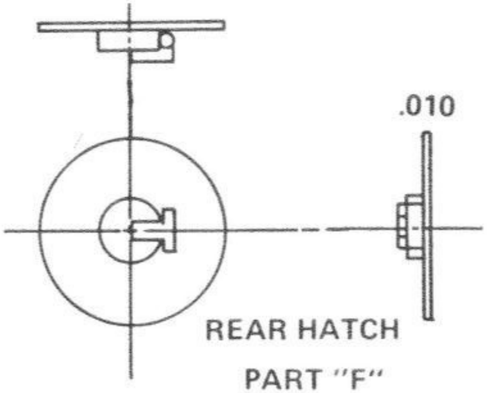
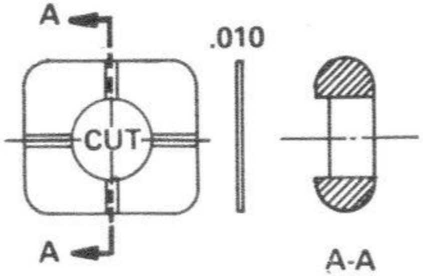
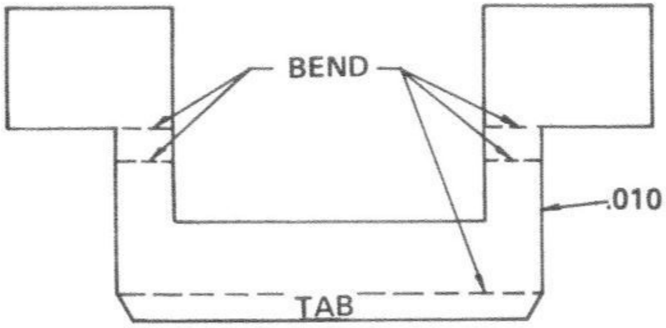


REAR HATCH
PART "F"



GUN MANTLE SHIELD
PART "H"



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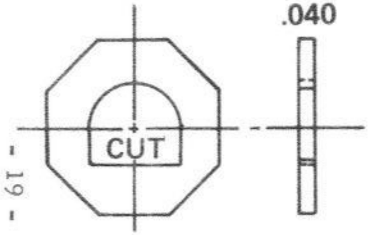
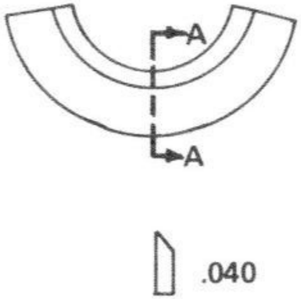
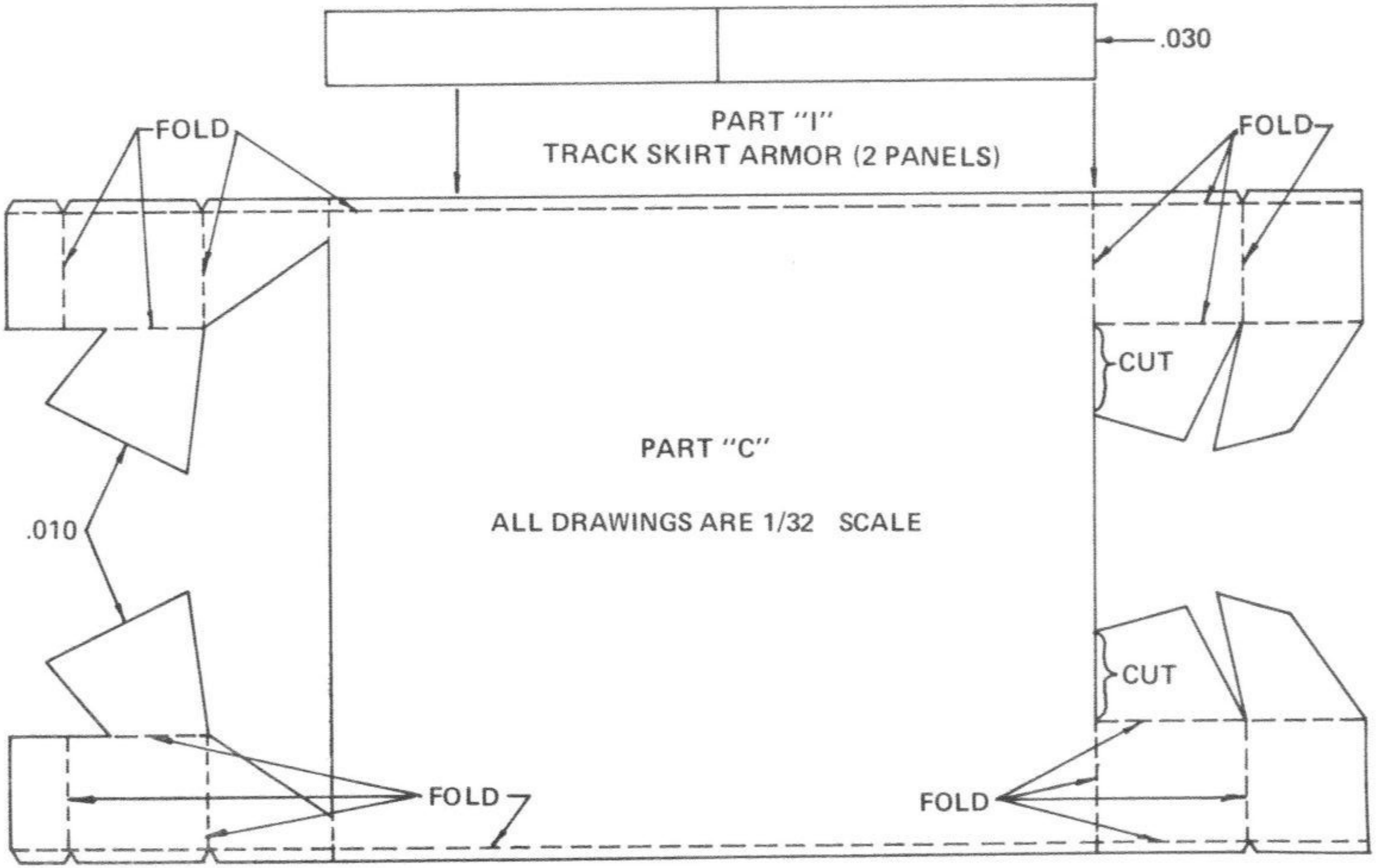


PART "E"



HATCH
PART "G"



PART "I"
TRACK SKIRT ARMOR (2 PANELS)

PART "C"

ALL DRAWINGS ARE 1/32 SCALE

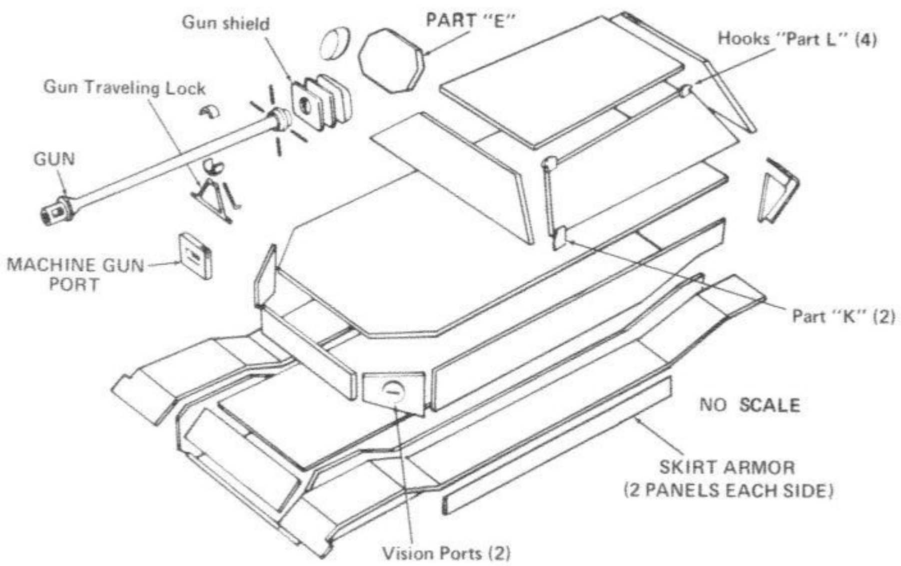
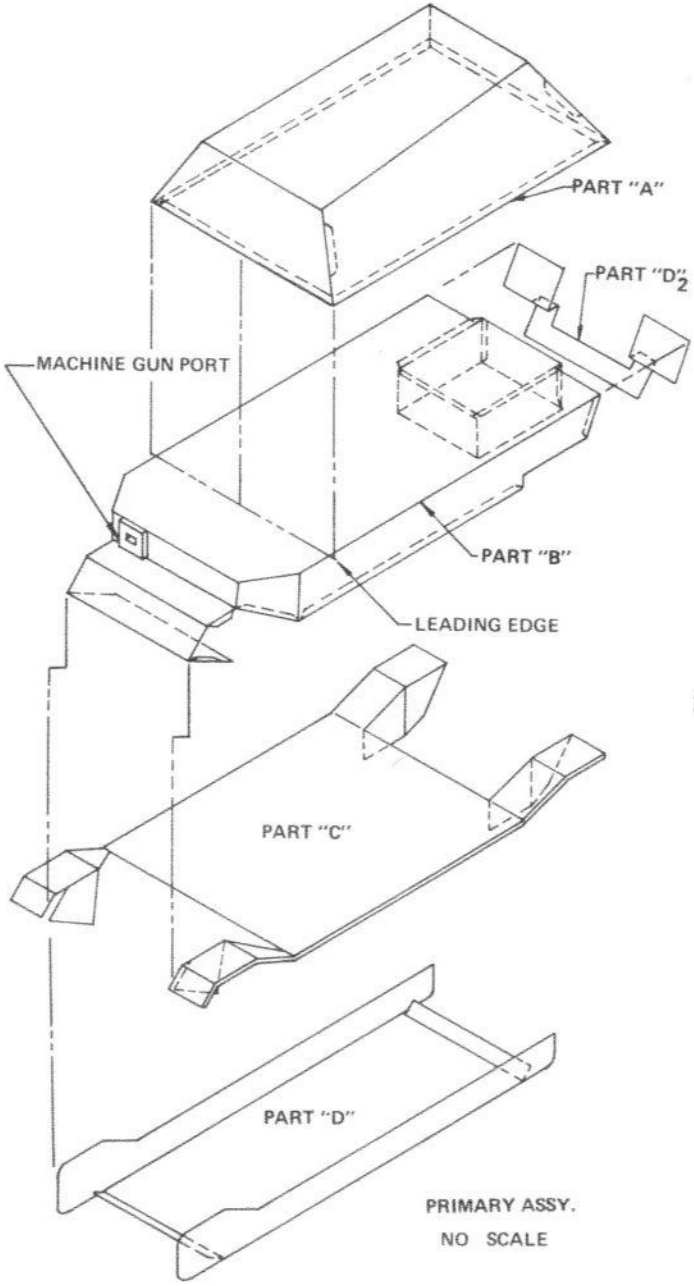
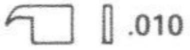


Illustration courtesy of THE SQUADRON SHOP, INC

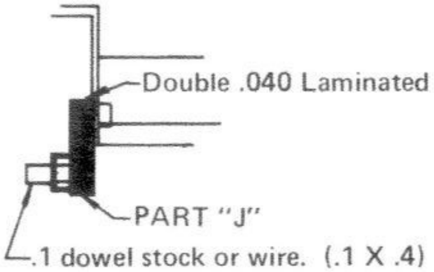


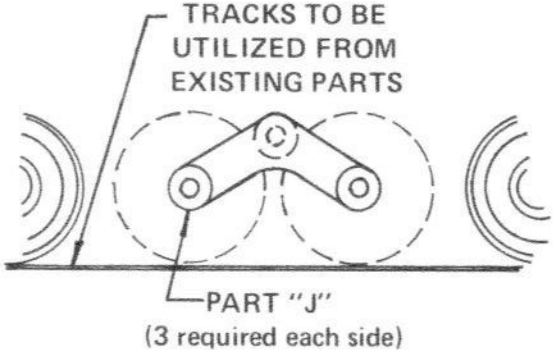
PRIMARY ASSY.
NO SCALE

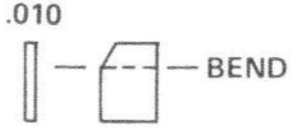
HOOKS



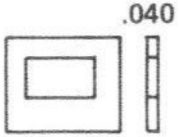
PART "L"
(4) 1 TYPICAL EACH CORNER (TOP)





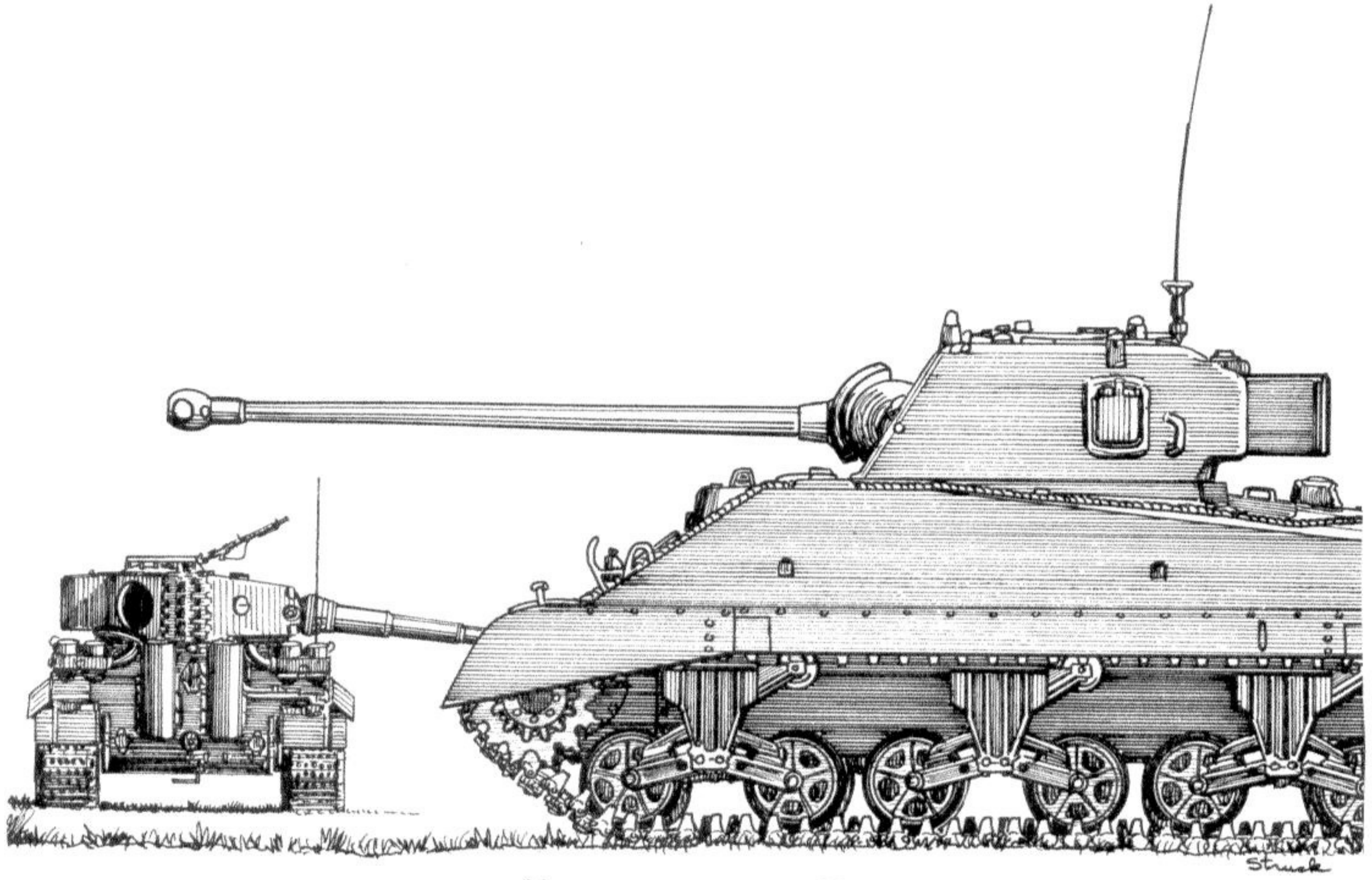


PART "K"
(ONE EACH SIDE)



MACHINEGUN PORT

ALL DRAWINGS ARE 1/32 SCALE



"Maczuga"

1st POLISH ARMOURED DIVISION IN THE FALAISE FIGHTING

PART 2

by Joe Struck

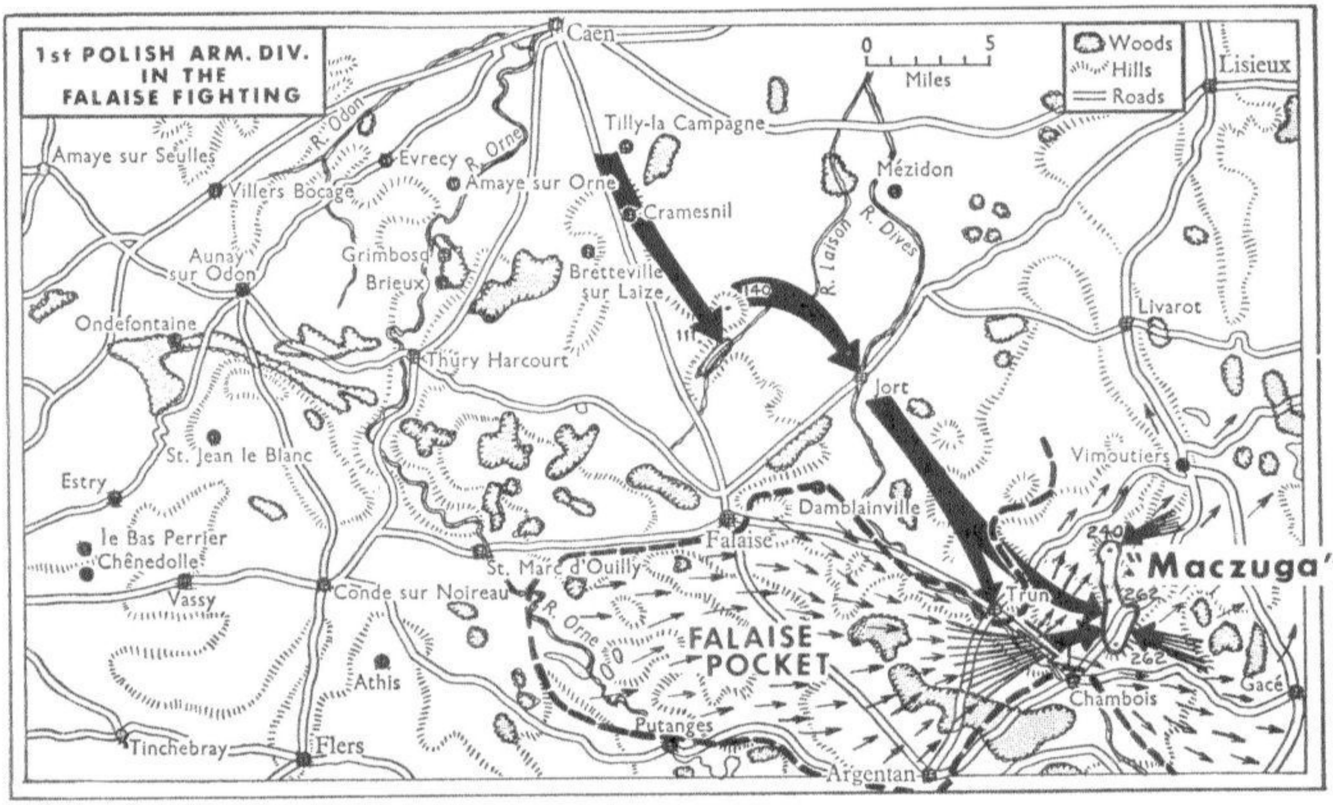
General Maczek, commander of the 1st Polish Armoured Division, saw that Hill 262 and the road junction at Chambois were the key to the Falaise Pocket. He named the hill Maczuga, because it resembled a bludgeon on his map and ordered more than half of his division there.

The 1st Polish Armoured Regiment, commanded by Major Stefanowicz, and the 9th Bn., 3rd Polish Infantry Brigade occupied the heights. Lt. Colonel Koszutski's 2nd Armoured Regiment and the 8th Bn. were delayed by lack of fuel, but fought their way to Maczuga during the evening of August 19th, 1944. Major Zgorzelski's 10th Polish Dragoons and the 24th Polish Armoured Lancers descended on Chambois, followed by Major Maciejowski's 10th PSK in reserve.

The 10th Dragoons fought slowly through the hedgerow-lined orchards, overcoming light opposition from surprised Germans. Lt. Karz's sixty-man platoon of No. 4 Company was hampered by 200 prisoners. Capt. Kintzi's No. 2 Company also rooted out prisoners everywhere; it took half his men to guard them. Capt. Giera's No. 1 Company, however, found few prisoners in Chambois; most of the Germans were dead amid equipment wrecked by air attacks. Beyond the road junction, No. 1 Company met American infantry also entering the town - loud cheering and hand shaking followed. To the west, the Poles and Americans could see the Falaise Pocket. The sight was awesome. Smoke from bursting artillery shells and aircraft strafing the crowded columns darkened the sky, while German equipment burned and exploded everywhere.

Major Zgorzelski organized a joint defense of the town, reinforcing the American sector with a squadron of Shermans from the 24th Polish Lancers. Long columns of retreating Germans approached at sunset. The tanks opened fire, creating havoc among the trucks and horse-drawn artillery. The escape route was closed...

The ordeal of the Polish on Maczuga began in the afternoon. Gunners on Hill 262 took a heavy toll of the retreating assault guns, personnel carriers, horse-drawn guns, staff cars, and trucks. Polish machine guns continued the slaughter, as their Canadian O. P. officer directed Allied artillery on to the columns. The Poles won the first round; not a man was lost. The Falaise Pocket



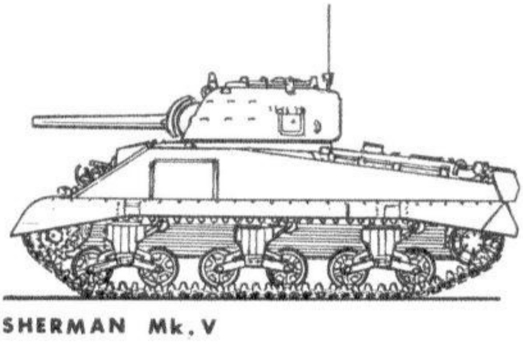
had been closed, but the battle of the Falaise Gap had just begun.

The Poles on Maczuga had not been able to join up with the nearby Americans and Canadians. The Polish were isolated and short of ammunition, food, and water; an 88mm shell destroyed their medical supplies and killed their only doctor. In addition, they held an ominous number of prisoners. An uninterrupted flow of Germans, determined to save their skins, streamed past the Allied positions, through the three-mile gap between Trun and Chambois, and split around both sides of Maczuga. Throughout the night, Germans and Poles fought at close quarters with small arms and knives.

When the morning mist cleared, the Polish on Hill 262 and at Chambois were amid the German columns crowding the roads and meadows. Polish guns roared and distant artillery joined in. Panic! The disorganized Germans scattered and ducked for cover. German tanks counterattacked in small groups but were soon knocked out. Many Germans advanced to Polish positions with white flags. Gen. Elfeldt, commander of LXXXIV Korps, attempted to counterattack Chambois with 200 infantrymen and a few tanks. After two hours of fighting, he surrendered to the Poles.

While the bad weather kept the Jabos (fighter bombers) away, the II S. S. Panzer Korps attacked desperately to open an escape route for their comrades trapped in the Falaise Pocket. At 0900, 9th and 10th S. S. Panzer divisions attacked the back door of Maczuga. The surprised Poles beat off the attack of the 10th S. S. but 20 Tigers and 3 infantry battalions of the 9th S.S. were climbing Hill 240 threatening to enfilade Hill 262. The Polish counterattacked with 16 Shermans. In three minutes, the Poles lost six of their tanks for one Tiger; the remaining Shermans hid from the 88's, while their crews prayed for artillery. When the distance was only 100 meters, the artillery poured down and set 5 Tigers ablaze. The Germans pulled back as the Poles destroyed 3 more Tigers. The 10th S. S. attacked again. Tigers and Shermans stalked the thick woods and destroyed each other in bloody close-range clashes. (It should be noted that Allied tankers often identified every German tank as a Tiger.)

Late in the afternoon, the Germans attacked from the



SHERMAN Mk.V

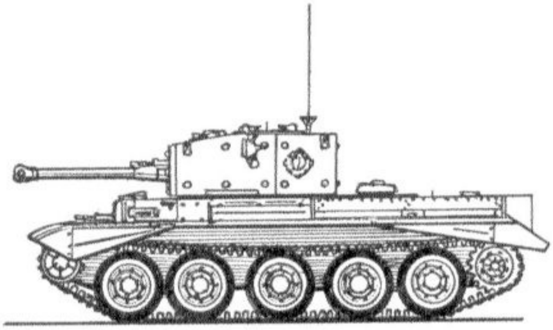
direction of Chambois with 25 tanks and 50 assault guns - hull-down Shermans and Fireflies soon discouraged them. German infantry also attacked in large numbers and were mowed down. The defending Polish mortarmen fought with rifles after finishing their mortar shells, but small arms ammuntion was also running low. By the end of the day, the eighth German assault had been stopped with Polish bayonets; the Germans shied from the "cold steel".

Over the German radio, the Polish listened to the report of "the encirclement of an entire Polish division in the region of Falaise." With little ammunition left and surrender to the Waffen-SS unthinkable, the Poles prepared to fight to the last man. They had seen thousands of Germans killed and felt that their turn was coming soon.

Panzergrenadiers and tanks also attacked the Poles in Chambois. Polish Shermans and Cromwells borrowed American ammunition, but the 10th Polish Dragoons could not use American ammunition in their British infantry weapons. They augmented their firepower with captured German weapons. The Germans attacked like maniacs, determined to break out and escape the "sack". The Poles were encircled for a time, but their tenacity and the accuracy of American artillery restored the situation. By evening, 1700 prisoners and almost 1000 wounded Poles and Germans were turned over to the Americans.

1st POLISH ARMOURED DIVISION

On the morning of August 21st, two German attacks struck Hill 262; again the Germans were put to flight by the accurate Polish fire. The Polish waited desperately for an air drop of ammunition. It was still misty, when the C-47 parachuted the supplies to a surprised Canadian Brigade five miles away. At midday, tanks were heard only 500 yards away!... two green flares rose in the sky. The Canadians! Only a wood filled with Germans lay between the two Allied forces. Three Shermans of Lieutenant Niewinoski's troop attacked, surprising the Germans as they prepared to meet the six Shermans of the Canadian 22nd Armoured Brigade. When the link-up was made, Poles and Canadians laughed, cried and embraced. Eight hundred prisoners were turned over to the Canadian forces. The three days of desperate fighting had cost the Poles 650 men and 14 Sherman tanks.



CROMWELL Mk.IV

Meanwhile, full-scale surrenders were taking place in the Falaise pocket. The fighting was over; unburied Germans lay everywhere. Burned-out and wrecked tanks, vehicles and equipment jammed the roads and fields where the Germans had abandoned them under Allied air attacks. Many Germans had left their equipment intact, to try to escape on foot. It was an incredible scene of destruction and devastation.

General Maczek arrived in Chambois the following day, after driving through the debris, which included a large number of Panthers and Tigers. Trumpets of the 10th Polish Dragoons sounded the Polish Army March, for the benefit of the many war coorespondents, while the General read them a telegram sent by General Crerar: "First Canadian Army is proud to number the 1st Polish Armoured Division in its ranks." A few days later in commeration, the Canadians errected a sign on the top of Hill 262.

"MACZUGA. A POLISH BATTLEFIELD."

Editor's Note: An excellent publication on Armor and Armored Vehicles is available from an organization in the United Kingdom. The Miniature Armoured Fighting Vehicle Association publishes a bi-monthly magazine titled Tankette. The magazine is of 6-1/2 by 8-inch size, and is printed on glossy paper. It features scale plans in 1:76th scale, and numerous photos; articles appear on virtually every aspect of armor and armor modeling. Subscriptions are $4.25 per year for surface mail, and $5.25 per year for air mail. Subscriptions may be obtained from the Secretary of the MAFVA: Mr. Gary Williams, 15. Berwick Avenue, Heaton Mersey, Stockport, CHES. SK4 3AA, England.

The German 7.5cm Towed Anti-Tank Company

by Jim Steuard

By 1944, German anti-tank warfare had evolved far from the early days of World War II., when the standard anti-tank gun was of 3.7cm caliber, and very ineffective. By the late war period, the caliber of the standard anti-tank gun was raised to three inches (or 75mm) in size, and this weapon was capable of penetrating almost every Allied tank at excellent ranges. The German quest for greater anti-tank gun mobility had led to the development of the Sturmgeschütz (or Assault Gun) and the Jagdpanzer (or Hunting Tank) which combined the larger caliber effective weapons with an armored chassis. Even though there were never sufficient mobile weapons of this type to satisfy the German requirements, most of the Panzer-Divisionen and the Panzer-Grenadier-Divisionen had quantities of assault guns and hunting tanks for both offensive and defensive purposes.

The Panzerjäger-Abteilung (or Anti-Tank Battalion) of the 1944 Type Panzer-Division was organized with the following units:

Stab, Panzerjäger-Abteilung	Headquarters, Anti-Tank Battalion
Stabs-Kompanie	Headquarters Company
1. Panzerjäger-Kompanie (Sfl.)	1st AT Company (SP Gun)
2. Panzerjäger-Kompanie (Sfl.)	2nd AT Company (SP Gun)
3. Panzerjäger-Kompanie (mot. Z)	3rd AT Company (Towed)
Versorgungs-Kompanie	Supply Company

The self-propelled gun companies were covered in some detail in a past issue of the AFV-G2 (Vol. 1, No. 9); these were equipped with either the Sturmgeschütz III. or the later Jagdpanzer IV. vehicles. Since there was not enough of the completely mobile weapons to equip all units of the battalion, the 3. Kompanie had to make do with the towed 7.5cm Pak 40 anti-tank gun, which was the standard weapon of the Infanterie-Divisionen.

The 3. Kompanie of the divisional Panzerjäger-Abteilung was provided with twelve of the 7.5cm guns, each towed by a "Maultier" halftrack vehicle. The Kompanie was organized with a very small Headquarters Section and three identical Gun Platoons, each with four of the powerful anti-tank guns. The company had 3 officers, 20 non-commissioned officers and 94 enlisted men. They were equipped with 59 rifles, 41 pistols, 17 sub-machine guns, and 12 light machine guns, in addition to the 75mm guns.

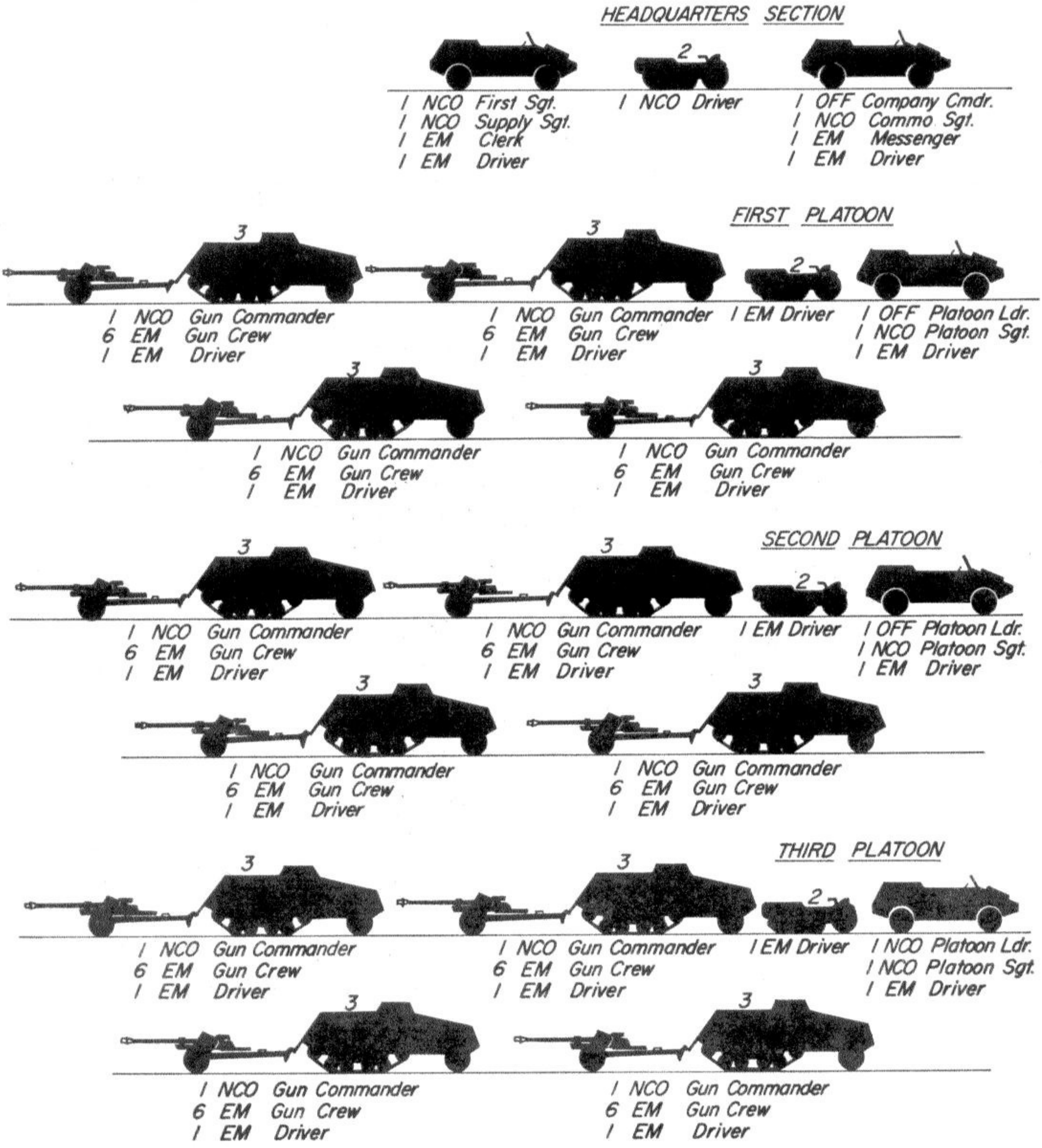
The basic combat element of the company was the Gun Platoon. This small unit was led by a Platoon Leader; an officer in the 1. Zug and 2. Zug, and a senior non-commissioned officer in the 3. Zug. The four anti-tank guns were towed by the halftracked "Maultier", either the unarmored converted truck version, or the armored version that gave some small-arms protection for the crews. Each of the guns was crewed with 1 non-commissioned officer and 6 enlisted men. The Platoon was also provided with a light car for the use of the Platoon Leader and Sergeant, and a motorcycle for communications purpose. For those units that served on the western front, this motorcycle was the standard wheeled BMW, Zundapp, or DKW. These wheeled cycles were exchanged for the NSU tracked "Kettenkrad" motorcycles for almost all units that operated on the eastern front, since the tracked cycle offered better mobility in the Soviet mud.

The Headquarters Section of the 3. Kompanie was abbreviated, with two light cars and one motorcycle. One of the light cars was used by the Company Commander, who was usually an Overleutnant (1st Lieutenant) or Hauptmann (Captain). The second light car was the property of the unit First Sergeant and Supply Sergeant, who ran the administration functions of the company.

In more-or-less normal useage, the 3. Kompanie was usually split into separate platoons; these three platoons being assigned to the three motorized infantry battalions of the divisional Panzer-Grenadier-Regimenter. The motorized battalions were normally without adequate anti-tank defense, and the attachment of a platoon of four weapons to each of the three battalions did much to solve some of the tank defense problems. Since each platoon was fully motorized, it functioned well with the unit of attachment. The small company headquarters then served as a coordination headquarters, to provide assistance and liason as required.

While the towed 7.5cm gun did not give the motorized infantry a self-propelled anti-tank weapon that could be easily moved about, it did give the infantry companies a powerful high-velocity gun that could defeat enemy tanks with ease. Its low silhouette made camouflage easy, and its effectiveness inspired the German infantry to make a better defense against heavy enemy odds.

PANZERJÄGER - KOMPANIE (MOT. Z.) TYP 1944



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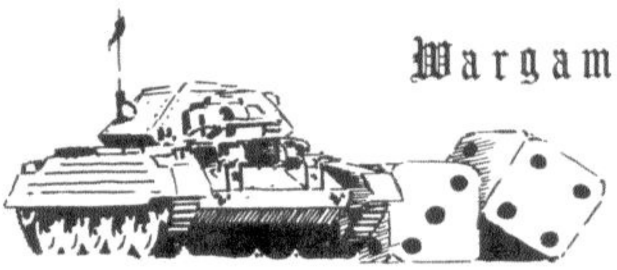


Wargame Review

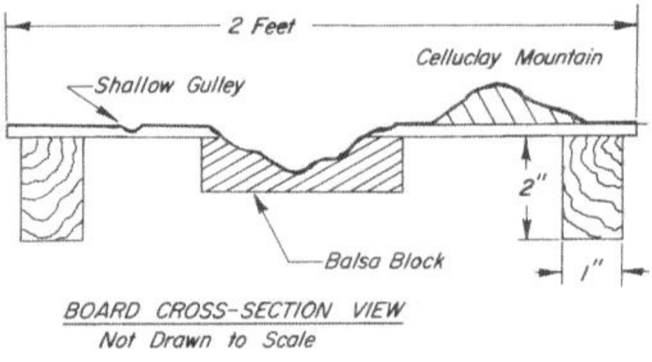
by Norb Meyer

The subject of this month's wargame review is the construction of a Micro-Armor wargaming board. Before one can play a realistic wargame with the lovely little pieces, it is necessary to have a board on which to play. The best part of a Micro-Armor board is the low cost of building the thing.

Let us examine what materials go into the construction of the board. First, you will need a piece of "hardboard" (also called "fiberboard"). This is the stuff from which pegboard is made, only without the holes; it has a fuzzy surface on one side and is smooth on the other. The next items needed are 1" X 2" boards; these can be of just about any grade so long as they are straight. Then, you will need a variety of balsa wood blocks and a bag of "Instant Paper Mache", also referred to as "Celluclay". The last things needed are a quart of paint the color of the finished terrain, and a 1 1/2" paintbrush.

Once you have accumulated this wealth of goods, you are ready to start on the wargame board. Now come the "executive decisions." What are your space limitations? If you live in a small apartment, you will want to make the "sections" small for ease of storage and to fit them on the kitchen table. Right about now you are saying to yourself, "Okay, you ding-a-ling, what is a section?" Allow me to elaborate. Imagine, if you will, the area of your future wargame board covered by a checkerboard pattern. Each square of the checkerboard represents one section of the wargame board. Suppose you decide that your board will consist of eight sections, each with different terrain. The sections are planned so that each can be placed next to any other. This allows you to quickly alter the board so that each game is different. Further, if your wargame gets to the "edge" of the board, simply rearrange the sections to eliminate the edge. The variety is almost endless; with just 8 sections, the possibilities are about 32 factorial. Boggles the mind, doesn't it? Furthermore, you can alter the board's shape to fit your space limitations. If you are cramped for space, you may decide to make your sections only 1' X 1'; the more sections the greater the variety. One recommendation though - don't go smaller than 1' X 1' or larger than 2' X 2'.

When you have planned terrain features for each section of the board, you can turn to construction. Let us presume that the sections are to be 2' X 2'. First, take the 1" X 2" lumber and cut sections to form a frame or box, the depth of which is 1/2" overlap by the hardboard. Even if you are not a carpenter, you will still have square sections. When the frame is finished, tack the hardboard onto the frame with the glassy side up. When the thumbs have healed, you will want to go on to construction of terrain. There are 3 basic types: mountain, wadi, and shallow gully.



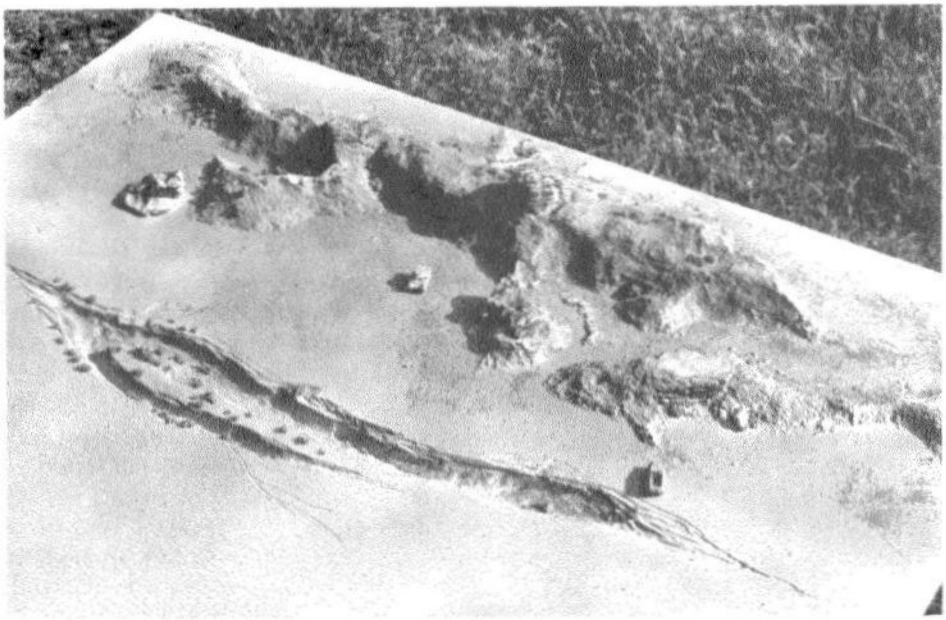
BOARD CROSS-SECTION VIEW
Not Drawn to Scale

MOUNTAINS are constructed with the "Celluclay." Lay a glob on the board and roughly form it into the desired shape - but not too high, remember this is Micro-Armor. If you desire a shale effect, use some redwood chips and mold the Celluclay around them after they are glued to the hardboard. One the basic shape is achieved, get a tin of water and a brush. Dipping the brush into the water, brush over the mountain until you smooth out the unnecessary irregularities; then allow to dry for a few days. Experiment until you perfect the technique.

WADIS: These little beggars are a bit more work but very much worth the effort. Use a hacksaw to cut out the outline of the wadi, then glue a balsa wood block underneath the hardboard (covering the hole) and allow to dry. When this is set, take a "Dremel tool" (or electric drill with a cutting bit) and GENTLY carve out the desired shape. Smooth out with flint paper.

SHALLOW GULLIES: These are the easiest to make. Again, using the drill with the cutting bit, cut into the glossy surface of the hardboard - but not too deeply - in irregular patterns. If, in the process you go through, don't worry; just glue a balsa block underneath, then carve it to get a rounded appearance.

Use the house paint to seal everything against the ravages of Micro-Armor wargaming. Be sure to shade your colors to get a realistic appearance. Now you are all set; start shooting!



Note: For those of you who are still looking for the "registered gun" column mentioned in last month's Wargame Review, relax there isn't any. The fourth round column on Table 1 should be used for registered guns... Ed.

Some Notes on German Anti-Tank Guns

by Kurt Fischer

When the Second World War started, the standard German anti-tank gun was the 3.7cm Pak 35 or Pak 36. This weapon was inadequate by 1940, and there were several moves being made to replace it. The 37mm gun, however, was still in use in 1945, with the Volkssturm (Home Guards) and Landwehr (Local Defense) units. The gun now fired a short range stick bomb with a shaped charge head, that was reasonably effective for one or two rounds before the enemy discovered the gun and knocked it out.

In 1941, the 5cm Pak 38 made its appearance. This was a high velocity gun with excellent performance and high accuracy. We received the first of these guns slightly after the start of the Russian campaign, and this was the only gun that we had that had the slightest chance of penetrating the T-34 tank. Since the frontal armor on the T-34 was sloped and thick, the preferred technique was to set-up flank ambushes with the few 5cm guns. The tanks were lured into the "pocket" where we could fire at the weakly armored sides and flanks.

During the first year of the Russian campaign, large numbers of Russian guns were captured and one of these, the 7.62cm Pak 36(r) was put to use against its former owners. This Russian gun was highly effective. When the supplies of Russian ammunition were running low, the gun was rechambered for the shell case of the 7.5cm Pak 40, which was not yet ready for service. This rechambering improved the performance of the gun, which was very well liked by our troops.

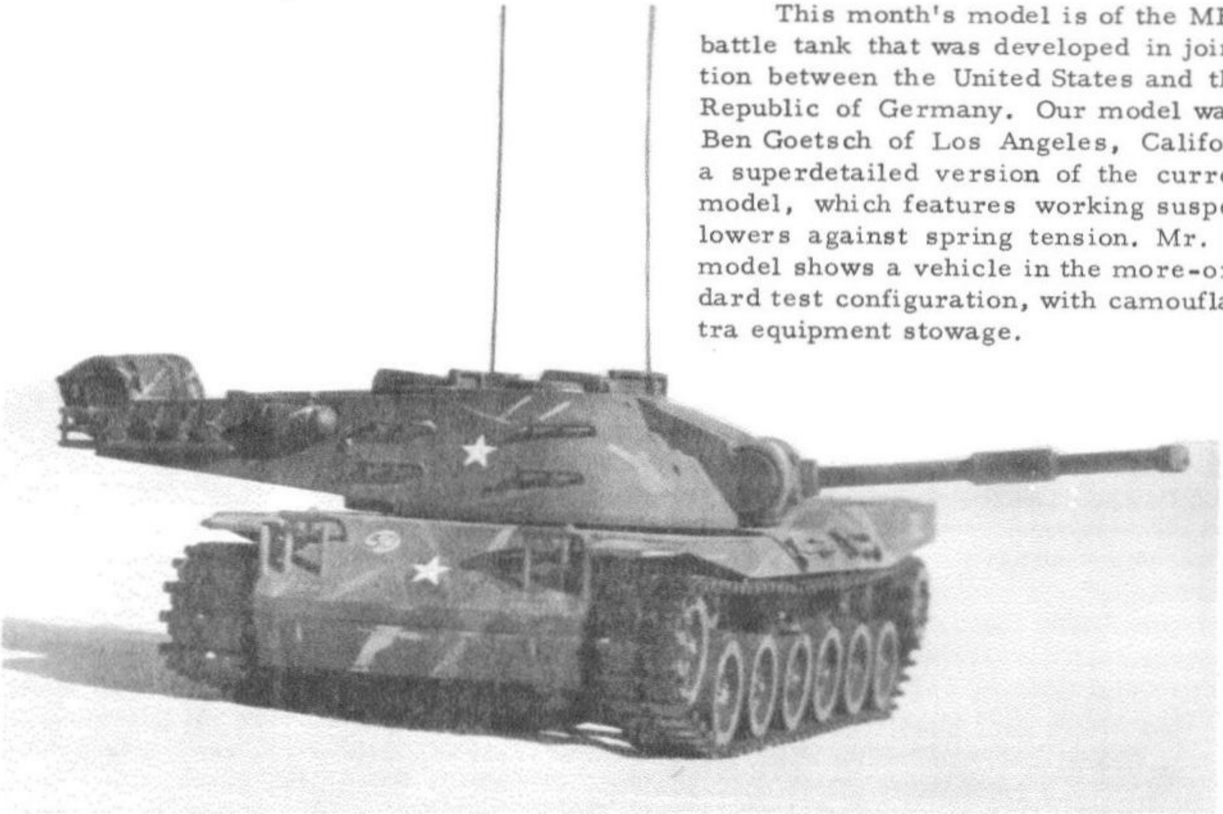
The 7.5cm Pak 40 was first issued to the troops in 1942, in very limited numbers, due to production problems. This was an excellent gun which could take care of almost any Soviet tank. With careful aiming, even the Josef Stalin could be dispatched. Even though the Panzer- and the Panzer-Grenadier-Divisionen generally had sufficient numbers of these guns, the poor Infanterie-units rarely had enough Pak 40's, and they suffered badly from this lack.

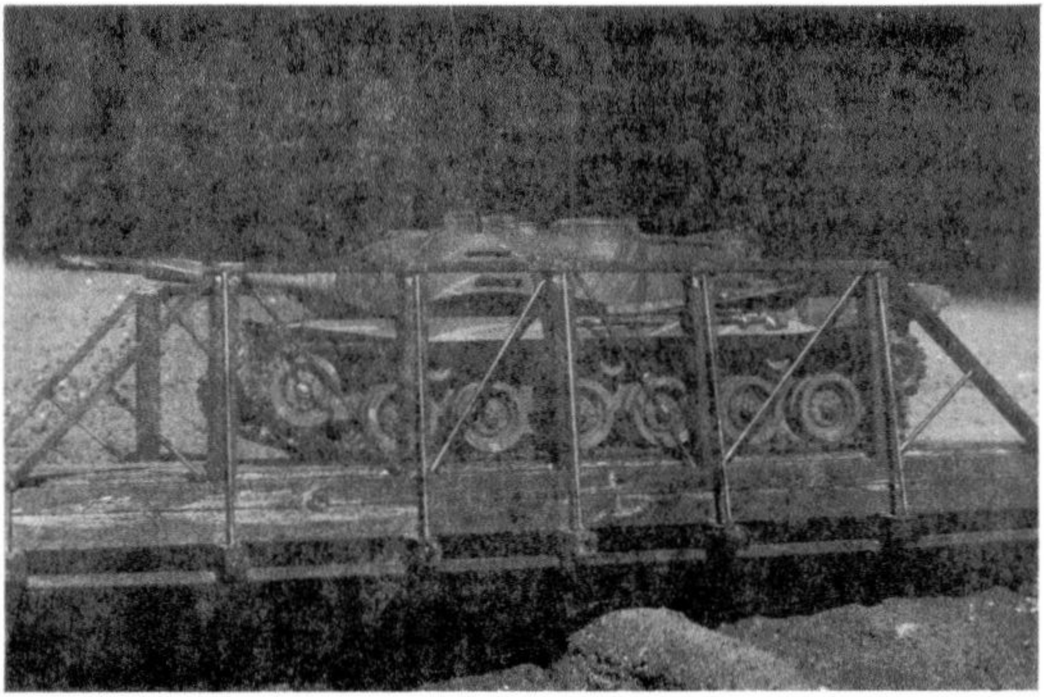
In 1944, the first of the famous 8.8cm guns were given to anti-tank units. Prior to this, the 88mm gun was only used in anti-aircraft units, which were often used as anti-tank artillery. The new gun was the 8.8cm Pak 43; it was mounted on a four wheeled chassis, with a gun shield, and it was quite low. There was another variation of this gun, the 8.8cm Pak 43/41, which used the two wheeled chassis of the 15cm Field Howitzer. These guns were extremely effective, but they were rarely seen in action, since there were very few of them so late in the war.

The Modeler's Page

Devoted to the examination by photograph of some of the best examples of Armor Models, from Super-detailed Kit models, to unusual and unique Conversions, and finally, to the complete Scratch-Build armor model, the highest form of the modeler's art..........................

This month's model is of the MBT-70 main battle tank that was developed in joint cooperation between the United States and the Federal Republic of Germany. Our model was made by Ben Goetsch of Los Angeles, California. It is a superdetailed version of the current Aurora model, which features working suspension that lowers against spring tension. Mr. Goetsch's model shows a vehicle in the more-or-less standard test configuration, with camouflage and extra equipment stowage.





Marine Tanks in the Pacific - Part XII.

by Joe Struck

Okinawa is only 375 miles from Japan. It was to be the US Marines biggest battle in the Pacific and history's greatest amphibious attack. The 100,000 Japanese defenders were ordered to hold out as long as possible, to make the American fleet a target for suidice Kamikaze aircraft.

On April 1, 1945, the Marines landed on the western beaches of central Okinawa. The 6th Tank Battalion (of the 6th Marine Division) landed with little difficulty. The tank company equipped with M19 flotation gear swam easily to the coral reef, crawled across, and dropped their flotation boxes on the beach. The 1st Tank Battalion landed from LCM's and LCT's, and was ashore by noon. The Marines moved-out along narrow roads in an unopposed attack. The 1st Marine Division swept eastward across the island while the 6th Division ran into a few isolated ambushes. As the 6th Div. drove north, tanks loaded with riflemen rolled along the dusty narrow roads, ineptly impeded by clumsy roadblocks and hastily laid mines. By April 13th, northern Okinawa was secured, after a brief battle on Motobu.

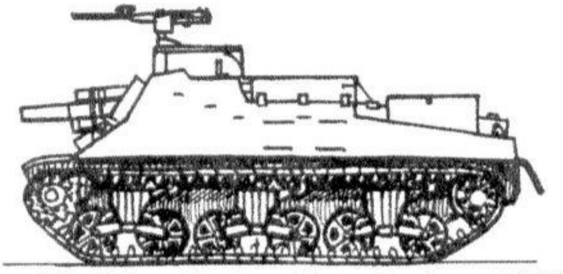
In May, the two Marine divisions went south to join the Army divisions fighting most of Okinawa's defenders in the Shuri line. The 1st Division went into the line on the right flank, and cleaned out the village of Miyagusuku. The Marines were supported by tanks of the Army's 713th Armored Flamethrower Battalion, the only flame tanks used on Okinawa. A Japanese counterattack that was meant to destroy the 1st Marine Division suffered heavy casualties instead. Then, Shermans and M7's of Regimental Weapons units supported the attack on Hill 60, blasting caves and pillboxes. Three M4's were knocked out by hidden 47mm anti-tank guns, but the hill was taken the next day.

The 6th Marine Division went into the line between the 1st Division and the western coast. Both divisions began attacking the Japanese defense system, which consisted of a series of interlocking fortified hills and ridges. By May 11th, the 1st Division was trying to silence opposition from Dakeshi Ridge, while the 6th Division fought for the high ground overlooking Naha. A rifle platoon was trapped there by enemy fire, and a platoon of tanks tried to rescue them. Two of the Shermans were wrecked by mines, while a third was abandoned when it got stuck in a shell hole. Thirteen of the 15 crewmen were killed or wounded. The heavy Japanese fire came from "Sugar Loaf" ahead of them.

Like the terrible hills on Iwo Jima, the Sugar Loaf was a mutually supporting complex of three hills: Sugar Loaf, Horseshoe, and Half Moon. The first assault on Sugar Loaf was driven back by fierce enemy fire, after three of the four supporting tanks were knocked out. A tank company tried to flank the hill, but it was stopped by a minefield. On May 17th, the 6th Tank Battalion supported four assaults on the hill; each was thrown back. On May 18th, a renewed assault was finally successful. Minefields and anti-tank guns got six tanks, but a company worked around each flank and silenced the defenders while other Marines reached the crest of the hill. Japanese counterattacked from caves on the reverse slope, but they were annihilated by the waiting Marine tanks. The fall of Sugar Loaf weakened the left flank of the entire enemy defense line. The 6th Marine Division now drove deeper into the Japanese defenses, but it could not enter the city of Naha until the 1st Marine Division took the Shuri Heights.

After the 1st Marine Division had cleared the Dakeshi Ridge, it attacked the Wana Draw, a long narrow ravine formed by Wana and another ridge, running east to the Shuri Heights area. While other 1st Battalion tanks and assault guns shelled the high ground, "B" Company supported the rifle teams that took on the enemy positions in the mouth of the draw. Both sides of the draw were honeycombed with cave gun positions, and the Shermans drew heavy enemy fire. One 47mm anti-tank gun scored 5 hits on tanks before it was silenced. On May 15th, the draw was again attacked. A fake attack was staged first to draw out the defenders. Then, working in relays, tanks and riflemen worked their was into the draw as far as Wana village. Three disabled tanks were destroyed to prevent their use by the Japanese as pillboxes. By nightfall, the Shermans had fired 5,000 rounds of 75mm and 175,000 rounds of .30 caliber ammunition. Support was also provided by 16-inch shells from the U.S.S. Colorado.

The Marines worked on the defenses at the mouth of Wana Draw for almost a week. New positions were noted daily and the Japanese were rebuilding the older ones each night. AT gun fire continued to pour down on the Marine tanks, while suicidal troops rushed them with satchel charge explosives. These were usually stopped by the supporting riflemen. Each cave had to be cleaned out with shells, flame and explosives. Meanwhile, the attack on Wana Ridge was stopped. Two assault companies swept forward behind 12 gun and 2 flame tanks; but, when they reached the crest, the Japanese concentrated their fire and blinded the tanks with smoke shells. Under attack from three sides, the Marines had to withdraw. The ridge was won and lost again and again. Finally, on May 20th, the 1st Marines, assisted by tanks, captured the crest. While gun and flame tanks blasted and burned the many caves and gun emplacements on the forward slope, engineers cleared a path for the tanks to take Wana Draw from the rear. The Japanese on nearby Shuri Ridge returned the fire. Mopping-up on Wana Ridge and in the draw proceeded slowly, while intermittent rain immobilized tank support and threatened to stalemate the 1st Marine Division advance.



M7 105mm Howitzer Motor Carriage (HMC) used by the USMC on Okinawa

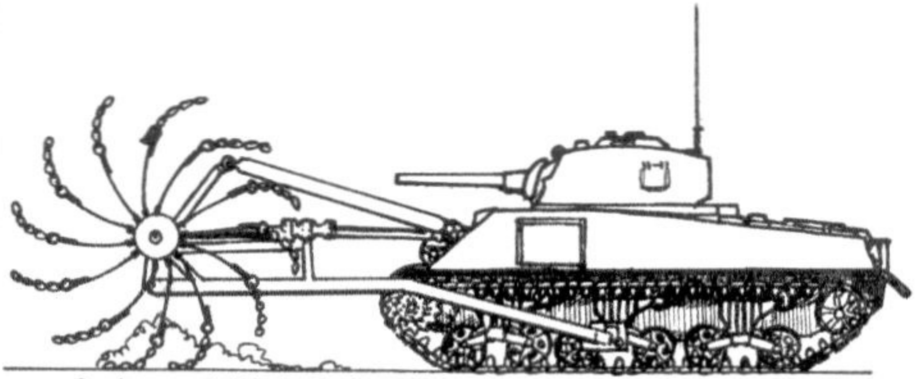
The 6th Marine Division fought their way into the ruined city of Naha on the 23rd of May, without their bogged-down tanks. With the fall of Naha, the Japanese began withdrawing from the Shuri Line. With the withdrawal, the 1st Division now began to make progress in Wana Draw, while Marine artillery and Corsairs punished the retreating Japanese. Three days later, the 1st Marines took Shuri Castle.

On June 4th, the 6th Marine Division boarded landing craft, and shoved-off from Naha Harbor, to assault the Oroku Peninsula in the last amphibious assault of World War II. When the Marines reached shore, A and C companies of the 6th Tank Battalion were restricted to the poor roads because of the muddy ground and the enemy minefields. Bulldozers helped to improve the roads, while the absent B Company came ashore. On June 5th, a fortified strongpoint on a hill near the airfield held up the 4th Marines advance. A platoon of C Company tanks worked their way along the reef and blasted the cave gun positions. The advance then got moving again, but soon Marines were stopped by "Little Sugar Loaf", a fortified complex of small hills with interlocking fire. Tank dozers and regular bull dozers repaired the mine-infested road in time for the Marine Shermans to support the attack which over-ran the enemy positions.

Two tank platoons led the 4th Marines' attack on Gushi Ridge on June 8th, while two more tank platoons shelled the enemy positions from the coral reef. The strongpoint, which had held-up the advance for more than half a day was over-run in fifteen minutes. Tanks, leading the advance through Gushi village, came under fire from a rail mounted 75mm gun in a cave. The enemy gun fired and missed---and a Sherman destroyed it while the crew were reloading.

The Marine drive continued until June 13th, when the remnents of the 5,000 defenders were routed. The Japanese could not escape, since the 1st Marine Division had sealed off the peninsula. The surviving Japanese soldiers surrendered.

The 1st Division had driven to the south coast of the island, and was battling for fortified Kunishi Ridge. This position contained countless caves, tombs and emplacements. Two rifle companies of the 7th Marines surprised the defenders, and gained a foothold. All attempts to reinforce the two units across the exposed plain were beaten back by heavy enemy fire. Troops and supplies were then loaded into Marine Shermans and were disembarked out of the bottom escape hatches, after the tanks had moved to the embattled riflemen on the ridge. By dark, nine M4 tanks had ferried a 54-man company to the position, and brought out 22 casualties. By the next day, Marine tanks were in position to shell the enemy ridge emplacements to cover the exposed supply route. However, enemy fire continued to block re-supply, except by the hard pressed tanks. Fighting was heavier on the 14th and 15th but few tanks could be spared for fire support, as most of them were bringing in critically needed reinforcements and supplies A rifle company, with the aid of gun and flame tanks gained 200 yards along the enemy held ridge, and Marine tank-infantry teams gradually gained the upper hand. Enemy resistance on Kunishi Ridge ended on June 18th.



Seabee and Marine built M4 Sherman Flail Tank

That same day, Marines and tanks of the 2nd Marine Division entered the battle. They attacked southeastward to the sea, and split the Japanese defenses in Southern Okinawa into two parts. Meanwhile, the 6th Marine Division drove down the west coast, and on June 21st, reached Ara Point, Okinawa's southern tip. Rapid progress was made by all assault units that day, as the major Japanese opposition collapsed. Over 10,000 Japanese troops surrendered, and Okinawa was declared secured.

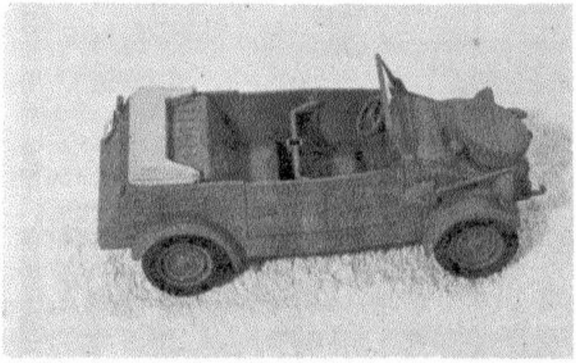
On Okinawa, in the judgement of General Sherherd, Commanding General of the 6th Marine Division, and later Commandant of the US Marine Corps, "if any one supporting arm can be singled out as having contributed more than any other during the progress of the campaign, the tank would certainly be selected." General Shepherd's opinion was shared by the Japanese commander on Okinawa, whose "battle reason" for the defeat stated that "the enemy's fire power lies in his tanks. It has become obvious that our general battle against the American forces is a battle against their M4 tanks."

With the completion of combat on Okinawa, the US Marines' job in the Pacific was near an end. US Army Air Force and US Navy aircraft began the bombing of Japan on an around the clock basis, using bases on Okinawa and Iwo Jima as the springboard for this air offensive. The closeness of these two islands to the Japanese homeland gave additional time-over-target to the US aircraft and there were few military targets in Japan that escaped the aerial onslaught. The Japanese were hard pressed, and with the dropping of two atomic weapons, surrendered unconditionally to the Allies. The Second World War was over.

PRODUCT REVIEW: Tamiya 1:35th Scale Kübelwagen by Norb Meyer

Well, Tamiya has finally produced a Kübelwagen! A few weeks ago, our Editor received several examples of this new kit from Japan, in return for photographs and drawings of his 1943 Volkswagen, which had been used by the model company in designing the kit. So, we have the opportunity of reviewing a new kit before it has really arrived in the United States.

The new Tamiya kit is pressed in a dark gray plastic; at least our pre-release kit was. It follows a new procedure by Tamiya that has become evident in the last few kits, such as the Schwimmwagen and the British 6-pounder AT gun; that is, manufacturing a kit that has a few numbet of parts for quick and easy assembly, yet has the maximum possible amount of detail for excellent realism. In this case, the kit has only 28 parts, and it could be easily assembled in an hour.



The floor pan and fenders are molded as one basic part, and the sides, nose plate and rear assembly fit easily and correctly onto this basic part. The fit is excellent on all parts. The kit is provided with two canvas tops, one in the standard position for poor weather, ie. "up", and the other in the "down" position. Both tops have an authentic canvas texture molded into the plastic. The model is also provided with extra "goodies" such as a MG-34 machine gun, a shovel, the internal rifle rack, and a separate spare tire, so that the correct ribs under this spare can be left exposed.

There are a few faults that can be easily corrected. First of all, the spare tire has a typically modern VW hubcap, complete with "VW" emblem. For authenticity, this emblem must be filed off, and the shape of the hubcap changed to the early "bell" shape instead of the "dome" style modern cap. The second hang-up is the MG-34, which is still crude. Of course, this is almost expected from Tamiya as they have not produced an accurate machine gun yet. Most versions of the Kübelwagen did not mount a machine gun, so this could be very easily discarded. Another problem is with the shovel, which is just too darn big. The handle is so long that it extends past the front edge of the door when it is installed and this would have prevented the door from being opened. The shovel handle must either be shortened, or the shovel should be discarded and replaced with a good version from H&R.

All of these comments are really nitpicking though. The kit is an excellent one. The decal sheet is complete with five different sets of license plates, tire pressure markings, twelve different tactical markings, and even white fender edging. The kit has the now "standard" three German soldiers which appeared with the Schwimmwagen; these are very finely molded with good detail. A little conversion work with these will produce extra figures for a diorama. The clear plastic windshield is one of the best that I have seen, and it really looks like glass when installed on the model. All in all, this is one of the best kits that Tamiya has produced yet. You'll enjoy making it.

PRODUCT REVIEW: 1:150th Scale Cardboard Armour by Jim Garrison

What wargamers need is another scale! Like it or not, we have it. It is obvious that a lot of thought went into the choice of the 1:150th scale. Vehicles in this scale do not take up the room that the larger OO/HO scale vehicles do. Yet, they are large enough to be recognized without the aid of powerful field glasses. Since this scale falls between "OOO"(1:144th) and "N"(1:160th) scales, houses, landscapes and other railroad accessories in these scales may be used to build a wargame board.

The wargamer has to cut, fold and glue the vehicles together. This can be very time consuming. Each set of vehicles are printed on appropriate colored card stock. While this does not allow for the relief type of detail that we are accustomed to from Roco and Airfix; any detailing that you might wish to add is accomplished by the use of a fine point drawing pen. Colored inks may be used to add markings;these vehicles may be painted with water colors without the loss of any detail. Each set of vehicles comes with extensive directions for detailing and conversions. The vehicles come two to a card. Those released so far include: Bren Carrier, Sherman/Firefly, Daimler A/C, Cromwell/Centaur, M5 Light Tank, M3 Half Track, Tiger I., Panther, Panzer IV., Hetzer, Sturmgeschütz III., Sd. Kfz. 250 and two models of the Sd. Kfz. 251 armored halftracks.

This range of miniatures was made with the wargamer, who has a lot of time and a limited budget, in mind. There are many price schemes for various quantities of these vehicles, but the best buy seems to be the "Double Battalion Pack"; where you get 96 vehicles for about $2.40. Send fifty cents to: Greening, Knoll Cottage, Knoll Road, DORKING, Surry, England, and see what they look like.

The M3 Stuart Light Tank (Continued from Page 7)

the center of the elevation handwheel, while the coaxial machine gun was fired by depressing a similar button on the traversing handwheel. The gun mount was provided with a gyrostabilizer, which allowed the gunner to fire the weapons accurately while the tank was moving. Even though the 37mm gun was lacking in armor penetration, the accuracy of the gun and optical sights gave British and US tank crews a marksmanship edge. In several instances, 37mm guns caused a number of casualties to exposed enemy tank crews at ranges over 1800 yards, firing high-explosive shells.

The bow machine gunner had a .30 caliber light machine gun mounted in a ball socket located on the sloping front plate of the hull. This gun could be swiveled to engage enemy infantry, with a fair degree of accuracy. Two additional .30 caliber machine guns were mounted in the sponsons on either side of the hull. These guns were fixed in position to fire forward by an adjustable traversing and elevating mechanism in the sponson, and the apature through which the gun was mounted in the hull front. The driver controlled the fire of these two guns, firing them with push-buttons located on top of the steering and brake levers. The right steering lever's button fired the right sponson gun, and so forth. These guns were deleted from later models of the M3 Light Tank as the crews required the gun space for additional storage, and in actuality, the guns were of limited value as the driver was usually too busy to use them. Almost all variants of the M3 were supplied with an additional light machine gun, which was mounted to a post mount on the turret rear for anti-aircraft protection. The 1:32 drawings omit this machine gun, but do show the mount for this weapon. The gun was manned by the commander, when he was not overly occupied with other jobs, such as loading the main gun, operating the radio, giving commands to his crew and in some cases controlling the movement of several other tanks.

In an overall evaluation, the M3 Stuart Light Tank was an excellent tank. While it had limited firepower from the 37mm gun which was outclassed by better German weapons, it had excellent accuracy and could fire while moving. While it had a very short range from the small fuel tanks and while it took aviation fuel of higher octane, it had excellent pickup and a good turn of speed. It was virtually impossible to throw a track, the engine was easy to maintain and work on, and crews had faith in the reliability and excellence of the vehicle. It was soon replaced by later versions of light tanks that were based on the M3 chassis, and it served long and well in a time when its use was sorely needed.

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